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"FRUIT WORLD OF AUSTRALASIA."

Representing the Deciduous, Citrus and Dried Fruits Industry of Australasia.

Published the First of each Month.

Editorial and Management Notices.

Articles and Photographs.—The Editor will always be very pleased to receive articles and photographs for publication. Articles on spraying, pruning, drainage, marketing, and other cultural matters, and reports of meetings, are welcomed. Please write on one side of paper only; include name and address (not necessarily for publication). Press matter sent in an open envelope, marked "Printer's MSS.," postage rate: 2 ozs., 1½d. Photographs, if sent in an open-ended package, marked "Photos. only," will travel at 2 ozs., 1½d. A short description of the photos. should be written on the back.

We do not hold ourselves responsible for the views expressed by our correspondents.

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The annual subscription, post free within Australia and New Zealand, is 8/6. All other places, 10/6, post free. New subscriptions can commence at any date. Subscribers should notify us immediately of any change of address.

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"The Fruit World of Australasia" is an advertising medium of proved value. Advertising rates may be had on application to our Head Office, or to agents in the various States, as set out below.

Changes of copy for advertisements must be in our hands on or before the 17th of the month prior to publication.

Readers are asked to make their purchases from our advertisers, who cover all lines of interest to orchardists, at the same time mentioning this journal. By so doing, the grower, the advertiser, and this paper will benefit.

Every care is taken to publish advertisements from reliable houses only, and to see that advertisements of an undesirable nature are not published. The management reserve the right to refuse to publish any announcements that they may regard as undesirable, either from the point of view of the goods offered or in the wording of the advertisement, notwithstanding the fact that a contract may have been entered into for the use of a certain space.

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Victoria (Head Office): 9 Queen Street, Melbourne. **New South Wales:** Carruthers, Farrum & Co., 77 King Street, Sydney. **South Australia:** W. F. McConnell, Grenfell Buildings, Grenfell Street, Adelaide. **Tasmania:** Saunders & Co., Murray Street, Hobart. **Western Australia:** D. L. Hetherington, Colonial Mutual Buildings, St. George's Terrace, Perth. **Queensland:** Gordon & Gotch Ltd., Queen Street, Brisbane. **New Zealand:** Gordon & Gotch Ltd., Wellington, Dunedin and Auckland. **Great Britain:** Harvey H. Mason, 1 Mitre Court, Fleet Street, London, E.C., England.

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Tasmanian Director: HON. L. M. SHOOBRIDGE, M.L.C.

THOUGHT FOR THE MONTH.

THERE are nettles everywhere, but smooth green grasses are more common; the blue of heaven is larger than the cloud.—Elizabeth Barrett Browning.

Editorial.

ORGANISING THE FRUIT INDUSTRY.

UNQUESTIONABLY there are many grave problems confronting primary producers, including the fruit industry in its several branches. The call of the moment—and always—is for wise, sane leadership to guide the industry forward to the prosperity which its importance to the community merits.

The industry, we believe, has the large goodwill of the Australian public. Methods and measures which are wholesome, constructive and large visioned, put forward with clearness and in a spirit of tolerance will meet with public approval.

Some of the disabilities under which the several sections of the industry are suffering include oppressive Arbitration Court awards, the high cost of equipment, the long continued control of sugar with its inequitable administration, the sudden excess of fruit crops beyond Australian requirements (induced by Government financed plantings), the unfavorable exchange rates, losses on transport to distant markets, etc.

With regard to dried fruits, the position is involved because of the fact that nearly 80 per cent. of the crop must be exported, and the export markets are unfavorable. Many of the growers are in debt to packing shed organisations.

The skies are clearing relative to the fruit canning position, owing to large increased local consumption of canned fruit, and favorable export prices. These, however, have been made possible because of the Government bounty. The peak of production has not yet been reached, as additional "soldier-areas" are coming into bearing this season, and the problems arising out of the planting of unsuitable varieties are not yet solved. Bounties on production and export for the coming season are imperative.

In Victoria the proposals for a compulsory orchard registration fee have been generally approved by growers' organisations. The subject was mooted several years ago, and met with certain opposition: this opposition, however, has largely died down, and the concensus of opinion seems favourable to legislative enactment of three years' duration—making an orchard registration fee of 1/- per acre compulsory. The Conference in Melbourne on August 19th will be fraught with great possibilities. At this meeting the growers' proposals will be finalised, and if approved, will be sent to the Government with a request that they be made law.

Wide vision and statesmanlike action are demanded. At the present time there is overlapping in some matters, some markets being over and some under supplied: the back country trade could be developed; an educational advertising campaign could be conducted which would have a far reaching and permanent effect for good; funds would be available to attend to many matters of great importance; and there could be a united, well-informed and continuously directed policy of co-operation with Governments in the matter of research into fruit cold storage and transport problems, and the establishment of horticultural research stations.

In regard to organisation of the fruit industry generally, one thought is worth bearing in mind, namely, the necessity for unity in regard to growing, and the wholesale and retail distribution. At the present time there is not that effective liason between producers and distributors, and there are misunderstandings on both sides. Propaganda of a destructive or misleading nature is to be deplored, for in the end the losses are borne by the growers. The industry must be viewed as a whole, and mutual efficiency is vital. Co-operation has been defined as "the art of so conducting yourself so that others can work with you."

America has passed many of the stages through which Australia has now entered, and learned many valuable lessons. Whilst we cannot slavishly follow the methods of others, we can gain valuable advice where economic principles operate, and where the experiences dovetail.

For the best results, each section of the industry must organise separately.

There are many problems facing us in this land. These will be solved as we face up to our responsibilities and determine with large-hearted faith, courage and honesty of purpose to develop our resources in a spirit of mutual tolerance: thus only will difficulties and differences disappear, and our army of earnest-minded producers engaged in a common calling will attain the individual and national destiny which is their rightful heritage.

STATE MARKETING IN VICTORIA.

The Labor Party has succeeded to office in Victoria, owing to the disagreements between members of the Nationalist Party and the Country Party. The new Minister of Agriculture (Mr. Hogan) is also Minister for Railways. A new portfolio has been created, and Mr. Hogan has become Minister for Markets. A scheme for State marketing of produce is being propounded.

News in Brief.

There is a severe drought at present in California and the Pacific Coast of U.S.A.—the worst for 20 years. Fruit crops are suffering.

The claims of soldier settlers on the Murrumbidgee Irrigation Area have received favorable consideration at the hands of the New South Wales Government. Freehold titles will be granted, and a commission will enquire into the matter of reducing the capital indebtedness.

That Victorian fruitgrowers are not supporting the suggestion for the formation of a Fruit Bureau, formed the substance of a report submitted by a sub-committee to the executive of the Victorian Fruitgrowers Central Association.

Fruitgrowers are making earnest application to have their industry removed from the jurisdiction of the Federal Arbitration Courts, and placed instead under the jurisdiction of the State Wages Boards.

Associations affiliated with the Victorian Fruitgrowers Central Association are generally in favor of an orchard registration fee. The matter will be fully debated at a conference of delegates of affiliated Associations at Melbourne on August 19th.

In accordance with the request of the Prime Minister at a recent deputation, fruitgrowers are preparing detailed statements relative to costs of production, with the idea of securing bounties on export.

The necessity for the importation of new varieties of Strawberries and for research work to raise new local varieties is advocated by a contributor in this issue.

A parasite which destroys the cockchafer grub, so destructive to Strawberry plants, has been noted by a grower at Silvan, Vic.

A packing shed and dehydrator are deemed to be necessary by farseeing growers at Clare, South Australia.

Where Apple and Pear trees require working over to other varieties, Mr. G. Wickens, of Western Australia, advises that the necessary scions should be secured early in August from trees thoroughly dormant, and buried in soil in a cool place to retard bursting of the buds.

The treatment of vines to control anthracnose, are given in this issue under our Western Australian Notes. Swabbing with sulphuric acid has been superseded by spraying with strong Bordeaux Mixture.

South Australian growers are pressing for an increased duty on Almonds and Lemons.

The position of Australian producers of fresh Grapes is not satisfactory. Details of the claim for Federal Government assistance will be found on our news pages, this issue.

Our Queensland correspondent urges the necessity for an educational campaign to instruct growers—and particularly the new settlers in citrus areas—in cultural matters and pest control.

The Queensland Committee of Direction now handles the Banana trade at Brisbane. The sales manager receives £750 a year.

Valuable hints on pest control are given in this issue by our Queensland correspondent.

The balance at the credit of the Defence Fund of the Tasmanian State Fruit Advisory Board stands at over £5,000.

Important resolutions were carried at the recent annual meetings of Tasmanian fruitgrowers.

In view of the difficulties and loss in recent years in regard to exports of Apples and Pears, growers have applied to the Commonwealth Government, in view of the Prime Minister's declared policy, for a bounty of 1/6 per case on fruit exported. Costs of production are being compiled.

THE BLEACHING OF WALNUTS.

Experiments in the bleaching of Walnuts by various processes were carried out last year at Hawkesbury Agricultural College (states the "Agricultural Gazette" of N.S.W.), different parcels of nuts being (1) sulphured only for three-quarters of an hour; (2) dipped in a bleaching solution and sulphured for three-quarters of an hour; (3) sulphured only for one and a half hours; (4) dipped in bleaching solution and not sulphured; and (5) left untreated.

Dipping in bleaching solution only resulted in a product good both in color and flavour, and this treatment was considered the most effective. The formula, according to which the bleaching fluid was prepared was 25 lb. chloride of lime, 18 lb. sal. soda, dissolved in 50 gallons water, sulphuric acid being added to the clear liquid (drawn from the settlings) at the rate of 1¼ lb. to 425 lb. of the solution. The period of immersion is about five to ten seconds, and after being dipped the nuts are immediately dried.

WRIT FOR LIBEL.

Owing to the publication of a report, under the authority of the Australian High Commissioner, alleging irregular marketing practices, several London brokers have served a writ of libel on Sir Joseph Cook. Sir John Simon, K.C., has been briefed by the plaintiffs.

Personal.

Mr. P. T. Young, J.P., who has been manager of the Ringwood branch of the English, Scottish and Australian Bank for the last 12 years, has been transferred to the Oakleigh branch. Mr. Young took a very active part in connection with matters affecting the fruitgrowing industry in Ringwood and surrounding districts, and his services were much appreciated. He is a past president of the Cool Stores' Association of Victoria, and is at present a Hon. Auditor of the Central Fruitgrowers' Association. We wish him success in his new sphere.

Mr. Basil Krone, of the Victorian Department of Agriculture, has been appointed to go to Brisbane to take charge of the Victorian fruit exhibits at the Brisbane Show in August.

Arrangements are being made for Mr. A. T. Booth, Secretary of the Mount Barker Fruitgrowers Co-operative Society Limited, to visit England about February next.

Mr. Booth expects to travel on the first Apple boat from Western Australia, and then to spend the season in London to watch the sale of the fruit.

Obituary

We regret having to record the death, on the 29th June, of Mr. C. J. Verso, President of the Hurstbridge Progress Association. Mr. Verso was at one time President of the Victorian Fruitgrowers' Central Association, and was on the Executive for many years. Deceased, who leaves a family of eight adult sons and daughters, was the contractor who erected Cole's Book Arcade. He was for several years a member of the Northcote Council, and it was during his term as Mayor that his wife laid the foundation stone of the Northcote Town Hall.

We regret having to record the death, on the 17th July, of Mr. Charles Barber, late of the Westernport Nursery, Somerville. The late Mr. Barber lived to the age of 71 years, and leaves behind him a widow and a grown up family. The deceased was an experienced fruitgrower and nurseryman, and was esteemed amongst a wide circle of friends.

The Cold Storage and Transport of Fruit.

Temperature : Gases : Humidity.

Adequate Ventilation Will Prevent "Brown Heart."

The Importance of Scientific Research to Solve Cold Storage Problems.

Interview with Mr. F. W. Wakefield.

THE TRANSPORT OF FRUIT in ships' cold storage chambers is a subject of intense interest to Australia. Australia has 282,000 acres under fruit, excluding vines, with a production worth about £7,000,000 annually. Each season, large sums of money are lost to Australian producers through faulty transport.

In one season the losses on Apples and Oranges reached close on £300,000. Scientific investigation followed, to the benefit of Apple producers, the mystery of "brown heart" having been solved.

This scientific work, however, is as yet in its infancy. Australia's future depends on the export of primary products. These annual losses fall too heavily on the producers. The economic loss to the community is too great.

At the present time various shipping companies are engaged in litigation in London in respect of

claims totalling £250,000

for damage sustained by Australian fruit in transit.

So serious has the position become that growers in Tasmania consented to an export levy, and raised about £6,000, portion of which was devoted to an inquiry into the technicalities relating to transport problems.

Tasmania was fortunate in securing the services of Mr. F. W. Wakefield, a trained scientist, to conduct the investigations. A few years ago, Mr. Wakefield was Botanist and Plant Pathologist to the Western Australian Government. Subsequently he worked under the direction of Professor Flynn in the University of Hobart.

When "brown heart" developed to such an alarming extent in Australia's export Apples, Mr. Wakefield carried out a series of experiments, in conjunction with the Hobart University, which so impressed the business men and fruit shippers that he was commissioned to go to London on one of the boats carrying an Apple cargo (s.s. "Port Pirie"), same being fitted with scientific instruments to determine some of the technicalities of fruit transport.

The result of Mr. Wakefields investigations have already been published in the "Fruit World," viz., that "brown heart" was caused by an excessive concentration of carbonic acid gas, or, in other words, that the fruit was suffocated.

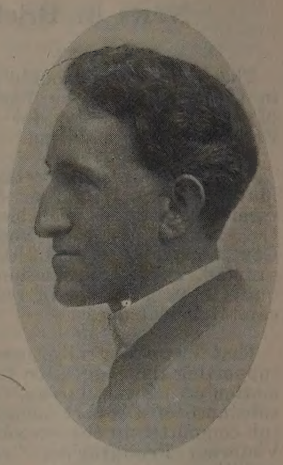
However, the full significance of these investigations and their importance to Australia was more fully realised when the Australian Conference of Fruitgrowers met at Hobart, when Mr. Wakefield was asked to give an address.

The President of the Conference (Hon. L. M. Shoobridge, M.L.C.), spoke highly of the valuable work accomplished by Mr. Wakefield. "Brown heart" was known as far back as 1893, he (the President) having seen Apples affected by it where the air had been stagnant.

Mr. Wakefield then dealt with his subject in a masterly manner, presenting a highly technical subject in a manner which was readily grasped by the assembled delegates. He paid a high tribute to the work of Dr. Kidd, of England, and his colleagues for the valuable work they had done in this connection, and demonstrated the necessity for further scientific research.

The opinion was expressed by Mr. Wakefield that a firm foundation has been laid for technical investigation into fruit cold storage and transport, and urged that future work be conducted by the Institute of Science and Industry, the Director of which is Sir George Knibbs, in co-operation with investigators in each State, and with Dr. Kidd in Cambridge.

The urgency of the need for scientific research into fruit cold storage and transport problems cannot be too strongly emphasized.



Mr. F. W. Wakefield.

A hearty vote of thanks was recorded, and a resolution was adopted commending the work to the Federal and State Governments, and requesting its continuance.

To enable readers to readily grasp the essential features of what is really a highly technical subject, the "Fruit World" interviewed Mr. Wakefield, who set out the position thus:—

Although "brown heart" was noted by Mr. Shoobridge as far back as 1893, its causes have not been investigated until quite recently. In fact, two years ago, losses amounting to £273,000 were caused through "brown heart," the liability for which has to be sheeted home to those responsible. It is now being contested in London. Claims for compensation, however, have to be based upon technical data, haphazard evidence being useless.

The whole matter of fruit transport needs to be studied scientifically. **Conclusions drawn from shipments in experimental chambers are unsatisfactory, and indeed may be utterly misleading.**

The cause of "brown heart" in Apples has been definitely diagnosed. Many other problems, however, relating to fruit transport need to be elucidated.

The Apple is a living thing: It is living when picked from the tree: it is living when sold to the consumer in London, and it is actively carrying out its multitudinous processes of life during its storage and transshipment.

It is because these have not been understood and taken into consideration that large losses have been incurred year by year.

Apart from the purely mechanical and engineering aspects of cooling fruit, there is

a biological aspect

which must be taken into consideration.

The flesh of the Apple consists of a large number of living units called cells. There are about fifteen million cells in every ordinary Apple, as well as the intercellular space. Fruit actually breathes. It evolves carbon dioxide, otherwise known as C.O.2, or carbonic acid gas—the same as we ourselves exhale—and takes in oxygen.

It has been definitely demonstrated that "brown heart" is caused by excessive concentration of carbon dioxide in the internal tissues. The higher the temperature, the greater the rate of breathing, but conversely, it has been experimentally proved that the Apples are more sensitive to a given C.O.2 concentration at a lower than at a higher temperature.

"Brown Heart" is Suffocation.

"Brown heart" is actually the suffocation of the fruit. Where large numbers of people congregate into an ill-ventilated room, they feel the effects of the concentration

of carbonic acid gas. With all types of living organisms, the excessive carbon dioxide evolved by breathing must be removed.

Careful studies have revealed the quantity of carbon dioxide which is harmful, and for the guidance of cold storage engineers, I have prepared indicator tubes. These tubes contain clear liquids which show green when the concentration is safe, but which turn red when the danger point is approached.

The variations in temperature caused by the opening of the holds are liable to cause damage to the fruit. As warm fruit—say, at Fremantle—is placed in the holds containing fruit which is cooled, and which has been in the same holds for about a week, it is liable to cause damage to the latter, owing to the greater sensitivity at the lower temperature. This has actually been demonstrated. More research work is necessary to establish scientific data.

We will now consider the "life history" of an Apple. From the blossom stage, the bulk of an Apple increases to its maximum. When it has finished growing, it is full of various foods, then gradually it undergoes a series of chemical changes, the fruit becoming sweeter. These various stages are described as ripe, overripe, unmarketable, rotten, etc., and are collectively known as the process of maturation, i.e., the progress in maturity.

This sequence of stages I have termed the "Maturation spectrum." Some varieties pass through the series of changes more rapidly than others, notably the Gravenstein, and other early varieties. Others take much longer to go through the "Maturation spectrum," under a given set of external conditions, temperature, etc. The rate at which the individual varieties pass through certain fixed points in this "spectrum" I have called the "Maturation constants" of the varieties,—in other words, every variety necessarily has a "Maturation constant."

Much research is necessary to determine this in relation to individual varieties.

It is my firm conviction that in years to come, these "Maturation constants" of fruit varieties will be included as a definite part of their pomological description, and that the "Maturation spectrum" will be worked out for each variety.

Respiration a Governing Factor.

Apples give off more carbonic acid gas at higher temperatures than at lower temperatures. They breathe more rapidly. This increased rate of respiration is an expression of an increased vital activity at higher temperatures. The relationship between this vital activity and the temperature can be expressed in a formula—in other words, it will be possible, knowing the life history of the Apple, or its "Maturation spectrum," to work out definitely the temperature at which any fruit in any given condition should be carried between here and the United Kingdom, or even to solve the equation, to give the temperature at which the fruit was actually carried. This will be a check upon the ship's log.

I desire to pay a tribute to Dr. Kidd, of England, who has laid the foundation for the successful researches into the Apple storage problems by purely academic studies. The original work of Dr. Kidd and his colleagues on the respiration of the sunflower has put the whole subject in a new light.

A most essential factor which has hitherto been overlooked was that of the respiration, and the controlling influence of C.O.2 on the vital process of plants. This inspired researches here on the problems of fruit storage and transport.

Thus, the respiration of the Apple is one of the controlling factors in regard to the progress of maturity. The researches so inspired have resulted in my developing the idea of "Maturation spectrum," and the temperature relation.

Thus, certain natural laws are being fulfilled with regard to the maturing of the Apple, and the delayed progress of this maturity through cold storage, say, on its journey to England, it being now possible to state these factors in definite terms, and to dispense with generalities. Thus, knowing the stage of maturity at which any variety of Apple has arrived, and allowing for the period, say, five or six weeks ship's journey—the temperature at which it should be carried can be accurately determined.

Immense Field for Research.

These facts are of great economic importance. Further, the temperature at which the Apple will keep longest is not necessarily the temperature which should be employed to carry the Apples to the homeland, because we want the fruit to arrive there at a later stage of maturity. Apples will keep longest at a temperature of about 32 degrees Fahr., but this temperature is not necessarily the best possible for all varieties in all conditions.

That there is an immense field for research is seen by the fact that in commercial practice, a large number of different varieties in different stages of maturation (some being long and some short keepers) are sent in one hold. The temperatures in different parts of the ship's holds varies. Then there is the factor that days and weeks elapse between the arrival of the ship into home waters, and its dissemination to consumers.

What is the temperature at which it will be safe to carry a mixed cargo?

We have not yet the data, and further research is necessary.

It is better that fruit should arrive under, rather than over, prime in London. However, it is certain that the fruit is not carried at a temperature of 32 degrees. Some cargoes are not reduced below 45 degrees and 50 degrees, yet they have reached England in a reasonably satisfactory condition. Such cargoes must have contained good fruit of good varieties, and have been at the correct stage of maturity on shipment.

No Gas "Pockets."

With regard to the carbonic acid gas in holds of ships, there is an impression abroad that there are pockets of gas in some sections of the holds; yet, experiments have demonstrated that contrary to anticipations it has been found that the carbonic acid gas is distributed practically uniformly throughout the hold. Convection currents, due to differential temperatures result in a rapid and uniform mixing of all the hold gases, and no pockets occur. Consequently, although it is advisable to take tests from near the bottom of the hold, it must not be assumed that the gas accumulates in the lowest strata—it does not.

The Famous "Durham" Shipment.

Reference has often been made to the famous shipment in the s.s. "Durham" twenty years ago, when 120,000 cases of fruit were sent in this ship. There is a popular belief that the temperature had been reduced rapidly, same being at 32 degrees Fahr. before the s.s. "Durham" left the Hobart wharf. Further, that there was no provision for ventilation, and the fruit arrived home satisfactorily.

I shall now proceed to deal with the points involved. In the first place, the temperature was certainly not 32 degrees Fahr. when leaving Hobart—it simply could not have been. I doubt if even the actual temperature of the fruit in the hold had been reduced to 40 degrees within a fortnight of sailing. Air temperatures taken near the pipes are not fruit temperatures. With regard to air circulation, a similar instance has demonstrated that in a hold containing 70,000 cubic feet (and which was presumed to have no ventilation) there was actually a replacement of 19,000 cubic feet of air in an hour, as a result of merely circulating. The success of the "Durham" shipment was a fluke, and other successful shipments were also flukes, in which the C.O.2 factor and other factors were ignored. It is high time that the element of chance should be removed as far as possible.

Heavy Seas Induce Unintentional Ventilation.

Queries have arisen regarding some ships arriving with sound cargoes, whilst others under what were apparently similar conditions, arrived with the fruit wasty, but here

is a new factor which has not previously been noted, viz., the ship is not a rigid structure, and when in a heavy swell or rough seas, "panting," due to the movements of the decks and sides, induces considerable internal air pressures. As a result, gases in the hold tend to escape through every conceivable minute aperture. A pumping action is set up. Very considerable volumes of gas may be exchanged with external atmosphere, **and this unintentional ventilation has in the past been an important factor in successful transportation.**

When speaking with ships' engineers, I am careful to point out that when making tests during a heavy swell, it is important to guard against dilution of the true hold atmosphere with fresh air sucked down the open thermometer tube, particularly if tests be taken near the top.

To show the carefulness at which researches had been carried out, I would mention that the quantity of gases thus displaced has been measured.

The Dawn of a New Era.

In conclusion, may I express the hope that further research will be continued in Australia. It is necessary for the work to be done here and that accurate data be compiled. Much valuable work has been done in England, and if it ever comes to a making claims against shipping companies or underwriters, Australia needs to be possessed of accurate, scientific data, otherwise there will be no hope of securing redress.

We stand at the dawn of new possibilities with regard to cold storage and transport of fruit. The work already done in studying Apple storage problems needs to be widely extended in relation to that fruit, and new work must be undertaken to discover the best means of shipping Oranges, Plums, Pears, Peaches, etc.

If this investigational work be placed under the care of the hands of the Institute of Science and Industry, it should be possible for the work to be done effectively, and at the least possible cost. A biologist in each fruit exporting State could continue the experiments on the lines already laid down, and the results could be collated and organised by the Institute in co-operation with investigations at Cambridge.

* * *

Summary.

(1) The principles of storage and transport are now clearly defined as:—

(a) Condition of fruit and variety, "Maturation constant." (b) Temperature. (c) Gases. (d) Humidity. Means to measure and control these conditions on board ship are now in daily use by the ships' engineers.

(2) The indicator tubes and C.O.2 chart have been used for the first time this season.

(3) The principles of maturation, as expressed in Wakefield's Maturation spectrum and Maturation constant, and his transportation formula provide a sound scientific basis for fruit transport.

(4) Ships' engineers were instructed at Hobart by Mr. Wakefield on the technicalities, and particularly the biological aspects, of fruit transport during the 1924 fruit export season.

(5) "Brown heart" can be controlled by ventilation.

(6) Further research work is urgently needed to solve other problems of fruit storage and transport. This work is of economic importance.

Strawberry Culture in Victoria.

NO kind of fruit comes into bearing so quickly, nor is such a universal favourite as the Strawberry, writes Mr. H. Henderson, Hon. Sec. of the Silvan (Vic.) Progress and Fruitgrowers' Association.

Strong plants put out even in August give a profitable return the first season, and given favourable weather, planting as late as September has given equally good results.

The soil for Strawberries should be a good light, friable loam, though heavier loams give better results in dry seasons. It should be clean, in good heart, and especially free from Sorrel. Nothing fills these conditions better than virgin soil that has been well worked and cropped with either Peas or Beans the first season. Fairly **well drained land** gives best results, though this is not so essential as with other fruits.

Protection from winds is not vital with the variety most favoured, as the fruit does not ripen at the same time, but is spread over several weeks. "Scalding" does occur even in well sheltered positions, but that is not to be wondered at when the fruit lies so close to the ground and the thermometer rises over 90 degrees.

Strawberries are propagated by using the young plants thrown out by runners from the crowns of one or two year old plants. In seasons when these young plants, known as runners, are scarce the crowns of old plants may be broken off and used as plants. This, however, can only be done with a plantation that is being uprooted, and is not recommended, particularly to those unacquainted with the growing of Strawberries.

The varieties used for commercial purposes are "Melba" or "Up-to-Date" and "Sunbeam." The latter, however, is not maintaining the reputation it once had, and the former, for various reasons, is the variety now most in favour.

As a Victorian grower, I deplore the fact that we are reduced to only one variety, when varieties have been produced in England and America that place our favourite as a "back number," and promise to revolutionise Strawberry growing.

The Rockhill Strawberry, for which Mr. Beatty, of R. M. Kellog Co. of Fruitgrowers, gave £11,000 for one plant some four years ago, is perhaps the last word in Strawberry production, both as regards its productiveness and price. The report is typically American. The "M. Kooi," of England, is a great producer, but just how to get a plant or two is a poser put to a certain Department with so far no enlightenment. The matter of introducing new varieties is urgent, but probably private enterprise will be the "policy" advocated.

Planting.

Plants are set out in rows from 3 feet to 3 feet 6 inches apart, and from 6 inches to 12 inches or more between the plants. The double row system, i.e., two rows of plants 6 inches apart, with 3 feet 6 inches to 4 feet between the rows, and the single row 6 inches apart, known as the "mat" system entail no end of knee drill when weeding.

The most economical method, both as regards space and working, is 3 feet between the rows and 12 inches in the row.

Preparation of Plants.

The "Melba" should be trimmed before planting, while the "Sunbeam" should not.

If the roots are firmly bound with soil which cannot be shaken loose, the plants should be washed in order to remove soil and permit of striking freely when planted.

Trimming is done evenly and satisfactorily by placing the crown of a plant in the centre of the palm of the left hand: straighten out leaves and roots, then close the hand, and what protrudes both above and below the closed fist should be cut off. This gives a plant that is easy to handle when being set out in the row.

Cultivation is essential to success, and although irrigation is beneficial, it is unnecessary to the production of good crops in a fairly normal season.

There is no definite modus operandi for keeping a plantation clean, but the broad principle is to do as much with the horse and as little with the hand as possible. Keep the cultivator going between the rows, and the hoe between the plants, for if this is neglected it will become necessary to engage in the drudgery of hand-weeding.

Manuring.

Quality and quantity can best be determined by the grower having a knowledge of soil requirements of the block. As a rule, however, a dressing of 5 to 10 cwts. per acre of blood, bone and Super, applied in May or

June, with a top dressing of Ammonia and Sulphate of Potash, when the plants are beginning to "move" in the spring, will be found to give satisfactory results.

Pests.

The only one worthy of mention is the cockchafer in the white grub stage, which has ever shown a special predilection for the roots of the "Melba" variety, while the Sunbeam, though not immune, is comparatively so.

Thousands of pounds sterling must be lost to the growers every season through attacks of this pest. Mr. C. French, the Victorian Government Entomologist, has conducted many experiments, and done all that is possible for the eradication of this grub, but once the beetles have deposited their eggs in a Strawberry plantation, it is impossible to eradicate them. Many may be destroyed by rooting them out with the hand-weeder and gathering, but it is both tedious and unsatisfactory.

Prevention is better than cure.

If attention is given in the evenings of early spring onwards to, say, mid December, the grower will soon observe when the beetle begins the mating flight, and possibly where they are making for. It is impossible to destroy them when thus swarming, but it is just possible to make a particular area distasteful, and thus induce them to pay more attention to some place where the plough and birds can deal with them in the autumn.

Recently an unknown larva (smaller than the larvae of the cockchafer) has been found devouring the cockchafer grub. This fact should induce growers to use keen discrimination when gathering or destroying white grubs, as much may be done by the increase of such larva for the eradication of this pest.

Marketing.

Choice Strawberries, carefully graded and well packed in pound punnets, find a ready sale in the markets at remunerative prices. These punnets are packed in crates containing 24-32 and 40 respectively, and are returnable to the grower when empty.

A ready sale is also to be had for the 12 lb. bucket. The fruit packed in this manner being mixed sizes, is intended for preserving purposes, though much is picked off the top layers for table purposes by the thrifty housewife.

Growers not desirous of picking and packing for the markets, dispose of crops to the various processers for preserving and other purposes.

These two methods of marketing, however, are very liable to fluctuation. In order, therefore, to stabilise both market and factory prices, a system of direct trading, both with the housewife and the dealer has been largely engaged in.

By this method it has been found possible to send this most perishable fruit so as to arrive in a satisfactory condition to any part of the State.

The Victorian Fruitgrowers' Central Association and the Housewives' Association have rendered invaluable service in finding ways and means for placing the grower in direct touch with the consumer, which has resulted in many valuable business connections being built up. The Housewives' Association are not continuing their efforts on behalf of the fruitgrower, but are directing their energies to secure the establishment of a fruit bureau, which will, it is hoped, continue the work they have so successfully inaugurated.

SOUTH AUSTRALIAN EXPERIENCES WITH STRAWBERRIES.

Varieties and Cultural Notes.

Mr. R. Fowler, Manager of the Government Orchard at Blackwood, South Australia, writes, in answer to questions by "Fruit World" readers as follows:—

The most successful commercial varieties grown in this district are the Gandy, Melba, and Royal Sovereign.

In our collection we have at the present time some 30 varieties, but they are only in their second year, and have not given us much information yet. Promising varieties are Ettersburg 98, a great improvement on Ettersburg, producing larger and better berries, and an enormous cropper, Illawarra, D. Moore, Jubilee, and Sunbeam. I am hoping to get more detailed information next season.

We find the best time for planting to be towards the end of May or early in June, while the soil is still warm. The plants get well established then, and make faster growth when spring comes.

In this district Strawberries are planted in rows 2 to 3 feet apart, with the plants 1 ft. to 18 inches apart, the rows being allowed to fill up with runners between the plants in the row. As regards situation, a northerly or eastern aspect is most preferred to give a crop of early fruit, this being a rather cold district, but in the drier, hotter parts they thrive well on a southern or south-western slope or down on the flat.

We mostly use super or bonedust as manure, applying a fairly heavy dressing, say 4 or 5 cwt. to the acre, when the bed is dug over in early autumn, or a heavy dressing of well rotted stable manure may be used, but this frequently leads to a heavy growth of weeds, entailing extra cultural operations, as the beds must be kept clean.

Care should be taken when planting to see that the crown is not left too high out of the ground or planted too low, as if left too high it may dry out, or if planted too low it may rot. It should be set just level with the surface when the soil has been pressed against it.

It should be remembered that some varieties of Strawberries produce imperfect flowers, and are thus not self fertile, and to make them productive it will be necessary to interplant them with varieties carrying perfect or self fertile flowers. The Gandy is a "perfect" variety, and one that will be found useful for cross pollination.

FERTILISERS AND STRAWBERRIES.

It has been estimated by conservative investigators (says a writer in "Better Fruit") that two good crops of Strawberries, including the production of vine and fruit, will remove during the three years of growth of the crop at least 223 lb. or more of nitrogen, 83 lb. or more of phosphoric acid, and 375 lb. or more potash per acre. Some of the reasons it pays to fertilise Strawberries are that it vastly increases the yield, gives larger berries, a better colour and flavour, and firmer fruit.

THE "SALT CURE" FOR WOOLLY APHIS.

The contention that applications of crude salt to the soil in the neighbourhood of Apple trees would effectively control woolly aphis has been put to the test by the South Australian Department of Agriculture at the Government Orchard, Blackwood. Trees were treated with dressings of salt, varying from 4 lb. to 14 lb. According to the manager of the orchard (says the South Australian Departmental "Journal" for April), the trees are still badly infested with aphis, and they are now rather sickly in appearance, due probably to the combined effects of the aphis and the salt. It is also noticeable that the fruit is falling more readily from trees which have been subjected to the salt treatment than from those untreated.

CROSS-POLLINATION EXPERIMENTS WITH PRUNES.

Experiments in the cross pollination of Robe de Sergeant Prunes were continued at Yanco Experiment Farm (N.S.W.) last season, trees of similar size and shape being pollinated with blossoms of Prune d'Agen, Sugar Prune, Angelina Burdett, and President Plum. The weights of fresh fruit obtained from the trees so treated were 27.5 lb., 39.5 lb., 52.5 lb., and 45 lb. respectively, an average of 41.1 lb. per tree as compared with an average of 39 lb. from four unpollinated check trees. The difference between the yields from the two lots of trees was not so great this season as last, but the experiment, states a Departmental pamphlet, was to a certain extent interfered with by wet and windy weather.

Grading and Packing Oranges.

By Basil Krone, Packing Instructor, Department of Agriculture, Victoria.

THE NECESSITY for the accurate grading and careful packing of Oranges is now fully appreciated by Australian citrus growers.

In order to render service to citrus growers, the Horticultural Division of the Victorian Department of Agriculture has made available the services of a packing instructor (Mr. B. Krone) to visit the several fruitgrowing centres to impart information.

Mr. Krone has prepared a chart, or ready reckoner, for the guidance of packers: same is published on this page. On this subject Mr. Krone advises that the size of the Oranges this season throughout Victoria is much smaller than usual, and is a better commercial size. He has therefore added some packs to the chart to suit present conditions.

On visiting several districts Mr. Krone noticed the lack of necessary equipment, and the adoption of "crude" methods in some sheds. To be of helpful assistance, illustrations have been prepared (published herewith) showing inexpensive but suitable equipment that should prove useful in the routine work of a packing shed.

The information supplied by Mr. Krone is as follows:—

PACKING ORANGES IN "DUMP" BUSHEL CASES. DIAGONAL SYSTEM.

A Ready Reckoner for the Citrus Packing Shed.

Size.	Pack.	Layer.	No. of Layers.	Total.
2¼ inch	3-2	6 x 6	8	240
	2-2	6 x 5	8	176
	3-2	5 x 5	8	200
2½ inch	3-2	5 x 4	8	180
	3-2	5 x 5	7	175*
	3-2	5 x 4	7	158*
	2-2	7 x 6	7	182
	2-2	6 x 6	7	168
	2-2	6 x 5	7	154
	2-2	5 x 5	7	140*
2¾ inch	3-2	4 x 4	7	140*
	2-2	5 x 4	7	126*
3 inch	2-2	4 x 4	7	112*
	2-2	5 x 4	6	108 (Seldom used)
	2-2	4 x 4	6	96*
3¼ inch	2-2	4 x 3	6	84*
	2-1	6 x 5	5	83
	2-1	5 x 5	5	75*
3½ inch	2-1	5 x 4	5	68*
3¾ inch	2-1	4 x 4	5	60*
	2-1	4 x 3	5	53
Over 4 inches	2-1	3 x 3	5	45

The asterisks indicate the packs most commonly found in a packing shed, although it is possible to use some of the other packs. This will depend upon how much the fruit has been sweated.

Mistakes are often made with the 112 and 96 counts, as both contain 16 fruits in each layer, but one contains 7 layers and the other 6. Care should be taken to avoid branding 112 for 96 and vice versa.

The 83 count will seldom come to the correct height unless the fruit is very fresh from the tree, therefore as citrus fruits should be properly sweated before marketing, this size should be packed 2-2, with 84 count, which will bring it to the correct height, and not 2-1.

The sizes given are approximate only, as much depends whether the Oranges are Navels or common, also on the amount of sweating they have received, as the same pack may require fruit of a slightly larger or smaller diameter. In addition to the grading and packing of each layer in the case, it is of utmost importance that the fruit comes to the correct height when finished, to allow for shrinkage in transit.

In the 140 count I would recommend the use of the 2-2 pack where possible in preference to the 3-2.

For the smaller sizes 4-3 and 3-3 packs have been used, but I would recommend 3-2 packs instead, because the former have the appearance of the "offset" packs showing holes or spaces at each side of the packing, which are unsightly. As an instance, should a packer adopt a 3-3 pack and 4 x 4 layer, 7 layers, this would total 168 for a 2½ inch Orange. I would prefer to see it packed 2-2 pack with 6 x 6 layer, 7 tiers, and the total 168 would be the same.

Instances of this kind do much to assist in improving the general "get up" of the fruit.

For the information of packers,—reckoning on the use of the new hardwood citrus export case as supplied to Citrus Associations this season:—

The 154 count in the dump case will be 200
„ 126 „ „ 150
„ 112 „ „ 126
„ 84-96 „ „ 112
„ 75 „ „ 96
„ 60 „ „ 80

PRACTICAL SUGGESTIONS FOR ECONOMICAL WORK IN A PACKING SHED.

Special Features of Packing Trolly (Fig. 1.)

1. The paper stand is close up beside the packer, facilitating fast work. If desired, the tray itself need only have two sides instead of three to keep the paper on.

2. Two grades can be packed at once, and apart from Oranges, will be found specially useful for Apples when packing "Special" and "Standard" grades.

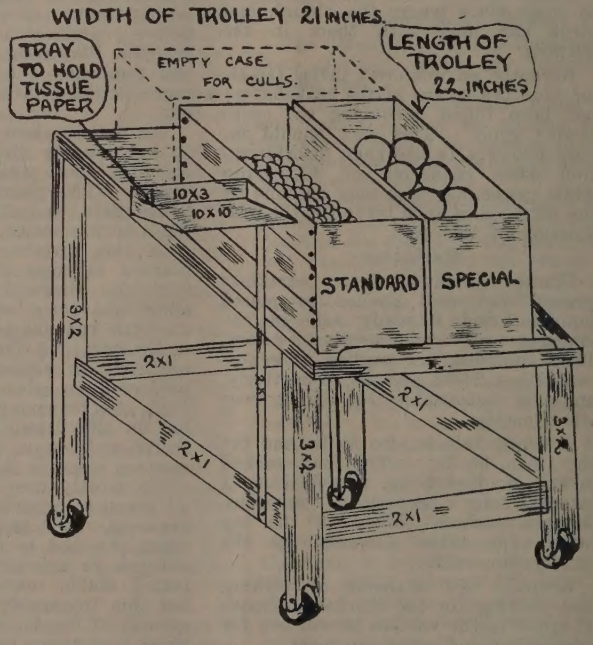


Fig. 1.—PACKING TROLLEY.

Timber used in trolley:—
Legs, 3 x 2.
Stays or cross pieces, 2 x 1.
Decking or flooring, ½ inch tongue and groove.
Wheels, 4 inch diameter by 1 inch rim, with ordinary bolts through for axles.
Legs of paper stand, 2 x 1.
Tray for tissue paper (Apples, 10 x 10, or Oranges 12 x 12).
Sides of paper tray (Apples 10 x 3, or citrus 12 x 3).

3. The trolley can be pushed backwards and forwards at will by having a small wheel let in at the bottom of each leg, as shown in diagram.

4. The trolley is long enough to hold an empty case at top of the others, in which can be put the culls. By having the case for culls in this handy position, the fruit can be put in gently and not bruised, as is generally done when thrown into an empty case on the floor.

5. This trolley is a double purpose one, and if made according to the measurements(it will accommodate three dump bushel cases or two citrus "Export" cases.

The second diagram (Fig. 2) shows the same trolley with the new citrus "Export" case in correct position for packing. This case is placed on the trolley in the manner illustrated on account of each of its sections being practically a cube, and therefore saves turning the case round or reaching over, which wastes time to pack the other half.

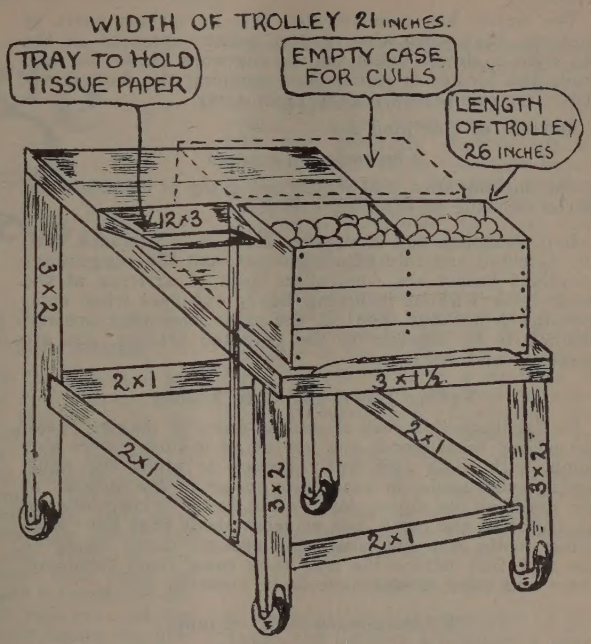


Fig. 2.—Same Trolley as Fig. 1, with Citrus export case in correct position for packing.

Nailing Down Benches.

The nailing down bench shown in diagram (Fig. 3) for dump cases is arranged in such a manner, particularly its height from the floor for convenient working (13 inches) that especially where girls are employed to do the packing, all heavy lifting for them is avoided if the bench is placed close beside the grading machine or packing bench, so that the operator can easily slide the packed cases there from his packing trolley.

Fig. 4 is a bench made for nailing down the citrus export case. The picture explains itself. In the absence of these benches or a press—3 x 1 battens, laid parallel on the floor, should be used in preference to nailing on the bare floor or an uneven surface.

This work in the packing house is almost as important as packing the fruit, and the suggestions made here will be found not only to minimise bruising, but

more cases per day

can be nailed down. This has now been definitely proved and the reason is:—That when cases have to be nailed up on a hard or uneven floor, much dumping up and down of the case is resorted to, and sometimes with a padded board first before the lid can be nailed on.

This, however, is not necessary, as not only is it a waste of time, but in some instances seriously damages the fruit, but when the cases rest on battens or on a bench, as shown in diagram, little or no dumping is required as the bench, being hollow underneath, allows the fruit to go down into its place upon slight pressure when nailing the lid on.

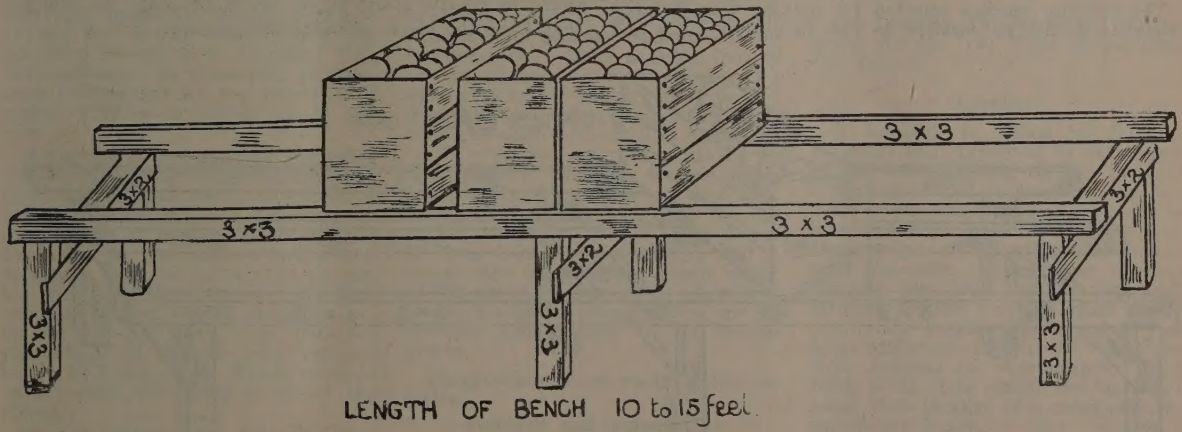


Fig. 3.—NAILING DOWN BENCH FOR DUMP CASES.

Cases should never be nailed down on a hard or uneven floor. Can be made by a handy man any length desired.

Timber used:— Legs and top pieces, 3 x 3. Stays, 3 x 2.

Height of bench, 13 inches. Width of bench, 21 inches over all. Length of bench, 10 to 15 feet.

This bench, being hollow underneath, prevents bruising of the fruit, and also does away with excessive dumping that fruit is so much subjected to.

In the absence of this bench, two 3 x 1 battens, laid parallel on the floor will do as well.

Length of bench, 10 to 15 feet.

The writer has demonstrated this in various parts of Victoria, that even when expert nailers compete on the old style, a slower nailer will do the work faster, because while the former is losing time dumping the fruit down, the latter commences nailing right away.

Matters of this kind are

a business proposition

to the packing shed, and should be worthy of consideration in the reducing of handling expenses.

In California, nail strippers, fruit case pressers, etc., are patented and sold at a high cost, and the suggestions contained herein are Australian ideas of arriving at the same thing without incurring heavy expenses when commencing a packing shed; at the same time they are not claimed to be superior to the patented articles, but are practical and efficient.

Nailing Down and Case Making.

To facilitate the work of nailing down or making cases, the writer recommends the use of an ordinary wire hair comb, with teeth sufficiently spaced to allow the nails, but not the heads, to pass through, or in the absence of the comb, an old dinner fork. The latter is certainly not as useful as the comb, but as most sheds that have been using combs are now unable to procure them, owing to the fact that before the war they came from Germany, these and other means have to be resorted to:—

A Home-made Nail Stripper.

This nail stripper, as shown in Fig. 5, is easily made by soldering four or five pairs of thin knitting needles on to a sheet of tin, as shown in diagram, which also illustrates the manner in which the tin is bent in order to work to the best advantage. After the stripper has been charged full with nails (by pushing the points of the needle gently through the nails in the box), it will quickly pick them up with the heads facing one way. The stripper should be hung on an old case end, which is temporarily nailed to one end of the box containing the nails, the nails being then taken as required. When the stripper is emptied and more nails are needed, it is only necessary to lift the stripper off, and to gently force the points of the needles through the nails, hanging it back on the case end, when it is thus charged again ready for use.

The knitting needles selected for making this stripper should be as fine as possible, as this facilitates quick and easy picking up of the nails. The needles are then soldered on to the tin in pairs, and just close enough together that a nail will fit easily between, but so that the head will not pass through. Each pair of needles should be spaced sufficiently to allow freedom for the fingers of the operator: 1½ to 2 inches lap will be found sufficient when soldering them to the tin, and this should be done strongly.

The use of either of the appliances mentioned will be found to greatly assist in the output per day. In addition they have the merit of being inexpensive.

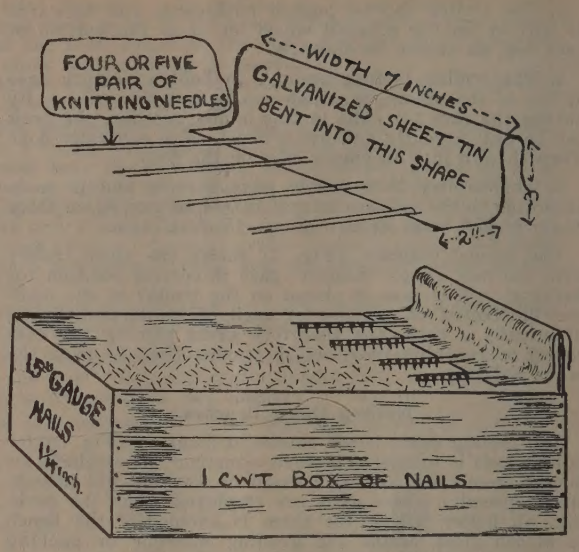


Fig. 5.— A HOME-MADE "NAIL STRIPPER."

Practical suggestions for economical working in a packing shed. Ordinary wire hair combs with teeth sufficiently wide apart to allow the nails (except the heads) to pass easily through is also an acquisition in a packing shed. In some instances an old table fork is used, but is not quite so useful as the comb.

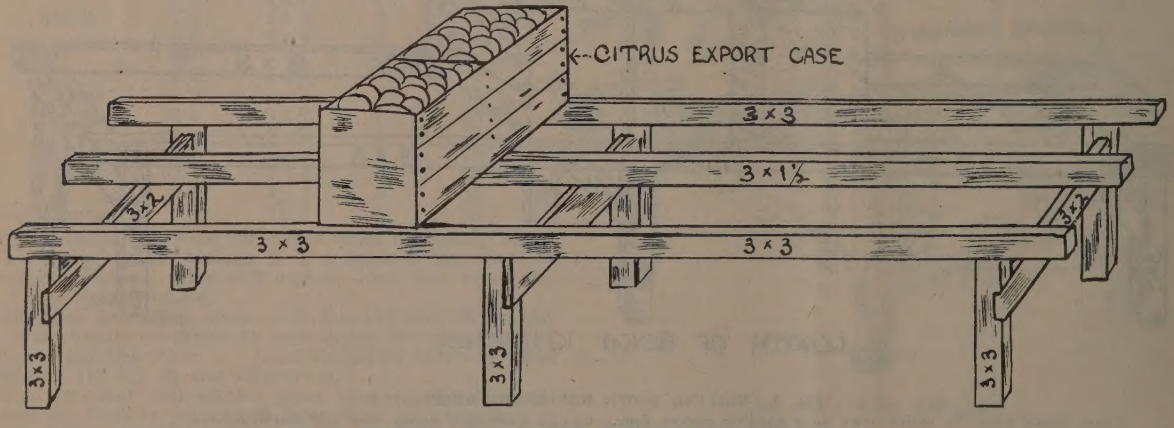


Fig. 4.—NAILING DOWN BENCH FOR CITRUS EXPORT CASE.

Timber used:—

Legs and two outside top pieces	3 x 3	Height of bench	15 inches
Centre top pieces	3 x 1½	Width of bench (over all)	26 inches
Stays	3 x 2	Length of bench	10 to 15 feet

In absence of this bench, 3 x 1 battens laid parallel on the floor should be used in preference to nailing down on a hard or even floor.

Cold Storage In Australasia

Flesh Collapse in Apples, Season 1923.

Flesh Collapse Differs from "Brown Heart."

The Investigations Cover Locality, Maturity, Delayed Storage, Type of Package, Variety, Etc.

Experiments with Sturmer, Jonathan, and Delicious.

A Bulletin by N. McClelland and L. W. Tiller, Cawthron Institute, Nelson, N.Z.

FLESH COLLAPSE IN APPLES has again caused serious losses in cool store fruit this season, and the problem cannot yet be regarded as solved.

At the beginning of the season the view was freely put forward that the fruit was suffocated by the lack of oxygen and by the presence of large amounts of carbon dioxide in the air of the cool stores. This view appears to have been based mainly on the work of the Department of Scientific and Industrial Research, which showed that brown heart (which has not been shown to be identical with flesh collapse) **in shipments to England** was caused by the presence of carbon dioxide in excess of 13 per cent.

A statement was recently published that flesh collapse in Apples stored in New Zealand was due to an excess of carbon dioxide and to a deficiency of oxygen, but at that time the analysis conducted by the authors had shown definitely that the percentage of carbon dioxide in three stores in the Nelson district had not at any time exceeded 1.5 per cent., nor had the percentage of oxygen been reduced below 18.5 per cent. Flesh collapse nevertheless developed in all of the stores.

The Department of Scientific and Industrial Research has shown that Apples can be stored successfully in air containing up to but not exceeding 13 per cent. of carbon dioxide, so that flesh collapse is almost certainly caused by some agency other than carbon dioxide. It would appear, therefore, that even if brown heart and flesh collapse prove to be the same disease physiologically, they are caused by different agencies.

The cause of flesh collapse

in Apples stored in New Zealand appears to lie in the cool storage conditions unless the trouble is in the fruit itself—a possibility which is remote, seeing that flesh collapse is almost unknown in the case of fruit kept out of cool store. On the other hand, orchard conditions and management may materially affect the susceptibility of the fruit to the disease. The utmost care must be taken to discriminate between the actual cause of flesh collapse and the factors which may influence its prevalence.

The most obvious differences between the conditions existing in cool stores and in orchard stores are in the three factors, (a) temperature, (b) humidity, and (c) ventilation.

(a and b.) A rise in temperature automatically reduces the relative humidity (percentage saturation) of the atmosphere, though the percentage of water vapour by weight in the atmosphere remains unchanged.

This is explained by the fact that at a higher temperature the weight of water which a cubic foot of air can carry is greater than at a lower temperature. Thus a cubic foot of air at 32 degrees F. can carry 2.1 grains of water vapour; if it carried ¾ of this, viz., 1.6 grains, its humidity would be described as 75 (1.6 over 2.1 = 75 over 100 approximately). At 38 degrees F. the same volume of air could carry 2.6 grains, so that if it were carrying only 1.6 grains the humidity would be 60 (1.6 over 2.6 = 60 over 100 approximately) and it could take up twice as much water as the air at 32 degrees F. A rise in temperature therefore causes air to increase considerably in its drying power.

Observations were made of the relative

humidity and temperature

in a number of chambers in the various stores, and it would appear that humidity may be a factor of great importance in the development of flesh collapse.

Unfortunately it was not possible to run a series of experimental chambers at different humidities so as to obtain measurements of the effect of different degrees of humidity upon Apples kept at the same temperature. In two chambers, however, it was found that, while the temperature was approximately the same as that ruling in other chambers, the humidity was generally slightly higher, and fruit from these two more humid chambers showed greater development of flesh collapse; but it is not at present justifiable to state that flesh collapse is due definitely to excess of humidity.

A very interesting point bearing on the same subject was brought to the authors' notice by Mr. N. B. Brown, engineer to the Nelson (N.Z.) Freezing Co., viz., that, in a chamber in which the humidity was reduced after flesh collapse had developed, the disease was to all appearances arrested, and the collapsed portion of the fruit was dried out in a remarkable manner. The Nelson Freezing Co. is following up this important observation during the 1924-25 season.

In view of the fact that

very little is known

of the physiological chemistry of the Apple, the authors are not in a position to make any definite statement as to the reason why excessive moisture may influence the onset of flesh collapse.

(c) No systematic study of the ventilation problem has been possible, but it was noted that more attention was given to the efficient ventilation of the stores this season, and that scald practically disappeared.

With regard to orchard conditions, the points which have been investigated are:—

(1) Locality, (2) Maturity, (3) Delayed storage, (4) Type of package, (5) Variety.

Locality.

1. Locality is stated by Ballard, Magness and Hawkins* to have some considerable bearing on the internal browning of Yellow Newtown Apples, a browning which may or may not be identical with flesh collapse. The Department of Scientific and Industrial Research, in its report on cool storage for 1922, states that, "A striking feature was the great variation in the keeping quality of Apples from different localities." In the N.Z. Journal of Agriculture, July, 1923, p. 34, it is stated, on the other hand, that locality is a relatively insignificant factor.

Experiments of this Institute show that during this season at least, **locality is an important factor influencing the development of flesh collapse.**

*"Internal Browning of the Yellow Newtown Apple," U.S. Dept. Ag., Bulletin No. 1104.

Maturity.

2. Maturity is a factor of considerable importance, immature fruit suffering less from flesh collapse than mature, and mature less than overmature; but, on the other hand, immature fruit is lacking in flavour and appearance, and is liable to excessive shrivelling.

Delayed Storage.

3. Delayed Storage.

(a) Sturmers.—Experiments show that

delay in storage

of Sturmers causes an increase in the amount of flesh collapse; but as the change occurring in fruit after picking is probably different from that taking place in fruit matured on the tree, it is unlikely that the increase in flesh collapse accompanying delayed storage is due solely to increased maturity.

(b) Jonathans.—Experiments with Jonathans extending over several seasons indicate that delaying storage reduces the amount of damage to this variety; these indications require further confirmation, and experiments will be continued next season.

Type of Package.

4. Sturmers were stored in three types of case, varying from tightly boarded to those with wide spaces between the pieces forming the top, bottom and sides of the case; flesh collapse developed equally in each kind of case.

Varieties.

5. The varieties used were Sturmer, Jonathan and Delicious, the last for purposes of comparison, as they are generally regarded as being practically free from flesh collapse, a view which, however, requires modification.

The following is a more detailed account of the experiments made during the season.

To get as representative a sample of fruit as possible in each case used for experimental work, the following method was employed.

In each orchard a number of trees was selected and a certain number of Apples picked from each tree (the number depending on how many cases were required); the Apples from each lot of three or four trees were put into one case, and in this way a series of boxes containing Apples representing three or four trees was obtained. The fruit in each box was mixed, and then, by taking a number of Apples from each box, the proper number to pack a case was obtained. In this way, the fruit in each case used for experiments was a fair sample of the Apples from the whole block of trees.

Each time an examination was made three cases of fruit were taken, and all the Apples in each case cut open. Owing to the fact that in many cases the trouble is not immediately visible in the Apple on removal from storage, all fruit was left for a period of about four days before being examined. It was found necessary, moreover, to make at least two, and often three and four cuts through the Apple to make quite sure that it was free from collapse.

Experiments with Sturmers.

The factors investigated were:—

(a) Carbon dioxide, (b) Packages, (c) Maturity, (d) Locality, (e) Delayed storage, (f) Storage conditions.

(a) **Carbon dioxide.** — Analyses made in a number of chambers in three separate stores in the district showed that throughout the entire season in no case was more than 1.5 per cent. of carbon dioxide present in the store atmosphere. This is remarkable in view of the fact that in closed vessels the carbon dioxide content increases rapidly to 20 per cent. or more even at low temperatures.

In the stores where no deliberate ventilation was given, this result is explained in the following way:—

(i.) The stores were not air tight.

(ii.) A certain amount of air was changed every time the doors were opened for the admission or removal of fruit or for other purposes.

(iii.) A certain amount is removed by solution in the liquid of a brine system, and by the snow on the coils of a dry battery system.

In general there was little or no difference in the carbon dioxide content of the air of the cool store chamber and of air drawn off from the centre of a case in the middle of a stack.

Another point determined by analysis of the store air was that even during the period when the plant was not working no settling out of carbon dioxide occurred—a fact which is in accordance with physical and chemical theory.

(b) **Packages.**—The average results of the examination of Sturmers stored in open and close boarded cases showed that these types of case produced no alteration in the amount of flesh collapse, and determinations made of carbon dioxide in the atmosphere of the two kinds of case were identical with the values obtained for the air of the chamber in which the cases were stored.

For the mature fruit from Wakatu picked in April and examined in December the figures are:—

Flesh Collapse.

Open case . .	Bad 7%	Slight 55%
Close case . .	Bad 8%	Slight 54%

(c) **Maturity.**—Maturity has been shown by Waters* to have an important influence on the development of flesh collapse, but, as indicated previously, maturity merely influences and does not directly cause the disease.

In the experiments detailed below, an attempt was made to select Sturmers at three corresponding stages of maturity, viz., immature, mature (i.e., suitable for cool storage), and overmature, from three orchards; the method of picking was as described previously, and the maturity was judged mainly on the ground colour, the help of Mr. T. C. C. Scott, a fruitgrower with long and varied experience, being much appreciated in this connection.

The result of three examinations of Sturmers (see Table II. for dates of picking) from three localities follow in Table I.; the figures represent percentages of flesh collapse.

*N.Z. Jour. Ag., 1923.

TABLE I.—STURMER RESULTS FOR THREE STORES.

STORE A.

Date of Examination.	Locality.	Immature. Bad. %	Slight. %	Total. %	Mature. Bad. %	Slight. %	Total. %	Overmature. Bad. %	Slight. %	Total. %
Aug. 15, 1923	Stoke	0	1	1	0	4	4			
Nov. 1, 1923	Stoke			7			10			
Dec. 1, 1923	Stoke	0	49	49	5	45	50	3	41	44
Aug. 15, 1923	Moutere Hills	2	45	47	5	73	78			
Nov. 1, 1923	Moutere Hills	22	41	63	30	52	82			
Dec. 1, 1923	Moutere Hills	42	47	89	52	43	95	78	14	92
Aug. 15, 1923	Wakatu	0	3	3	0	15	15			
Nov. 1, 1923	Wakatu			14			33			
Dec. 1, 1923	Wakatu	2	48	50	7	52	59	11	56	67
								*26	56	82

*Picked after four days heavy rain. This result gives support to the statement frequently made by growers that fruit picked immediately after rain does not keep as well as other fruit.

Table I.—(continued.)

STORE B.

Examined.	Locality.	Immature. Bad.	Immature. Slight.	Immature. Total.	Mature. Bad.	Mature. Slight.	Mature. Total
		%	%	%	%	%	%
Dec. 1, 1923	Wakatu	7	50	57	16	62	78

STORE C.

Examined.	Locality.	Mature. Bad.	Mature. Slight.	Mature. Total.
		%	%	%
Nov. 30, 1923	Stoke	1	17	18
	Moutere	20	65	85
	Wakatu	2	36	38

TABLE II.—DATES OF PICKING STURMERS.

	Immature.	Mature.	Overmature.
Wakatu	23rd March	17th April	6th May
Moutere Hills	24th March	31st March	20th April
Stoke	20th March	20th April	7th June

The authors have been informed by a well-known fruitgrower that in his orchard there is a distinct difference between the amount of flesh collapse in fruit maturing early and fruit maturing later on the same trees—the early fruit keeping better. This is a point upon which further information is required.

(d) **Locality.**—That locality has a decided influence has been shown by the figures given above, but the table below presents the differences for mature fruit in a clearer manner.

Locality.	1st Examination. Aug. 15th Mature Fruit. Bad.	Slight.	Total.	2nd Examination. Nov. 2nd Mature Fruit. Bad.	Slight.	Total.	Final Examination. Dec. 1st Mature Fruit. Bad.	Slight.	Total.
	%	%	%	%	%	%	%	%	%
Stoke	0	4	4			10	5	45	50
Wakatu	0	15	15			33	7	52	59
Moutere Hills	5	73	78	30	52	82	52	43	95

There was a difference in the state of cultivation of the three orchards as follows:—Wakatu, good; Stoke, fair; Moutere Hills, poor.

It must be borne in mind that the fruit at different stages of maturity has been stored for different periods owing to the differences in the dates of picking, and this may have influenced the results; but the comparison of the mature fruit from Stoke with the immature fruit from the Moutere Hills supports the view that locality is of importance.

Locality.	Time Stored.	Bad.	Slight.	Total.
Stoke (Mature Fruit)	7½ months	5%	45%	50%
Moutere Hills (Immature Fruit)	5½ months	2%	45%	47%

Although the mature fruit from Stoke had been stored for nearly two months longer, the amount of flesh collapse was practically the same.

(e) **Delayed storage.**—Delaying storage of Sturmers after picking increased the amount of flesh collapse as shown in the following tables:—

STORE A.

Time kept out of Cool Store.		0 weeks.	3 weeks.	6 weeks.	9 weeks.
		%	%	%	%
Mature Fruit	Bad	16	29	61	43
	Slight	62	60	33	48
Immature Fruit	Bad	7	9	19	32
	Slight	50	56	54	60

STORE B.

Time kept out of Cool Store.		0 weeks.	4 weeks.	6 weeks
		%	%	%
Mature Fruit	Bad	5	25	41
	Slight	52	51	47

IMPERIAL FRUIT SHOW

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OCT. 24th --- NOV. 1st 1924

First promoted in 1921 to foster the Imperial fruit trade, the Imperial Fruit Show is increasing in popularity yearly, and is now generally recognised as the annual rendezvous of all the progressive elements in the fruit industry.

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The fruit used in the above experiments was taken from Wakatu, and was kept in a well ventilated shed prior to being stored. Some orchard sheds are distinctly unsuitable for the storage of fruit, and it is probable that in these the harmful effect of delaying Sturmers would be aggravated.

(f) **Storage conditions.**—No details of the conditions existing in different stores can be given, as it was agreed that any results obtained by the authors relative thereto would be treated as strictly confidential.

EXPERIMENTS WITH JONATHANS.

Mature Jonathans were picked from two orchards, and the results obtained at Store A are given below:—

Date of Examination.	Locality.	Flesh Collapse. Bad.	Slight.	Total.
		%	%	%
2/8/23	Stoke			73
2/8/23	Wakatu			72
1/9/23	Stoke	47	35	82
1/9/23	Wakatu	60	25	85
1/10/23	Stoke	61	24	85
1/10/23	Wakatu	68	17	85

The dates of picking were:—Stoke, 13/3/23; Wakatu, 17/3/23.

It is interesting to note that the total amount of flesh collapse did not increase between 1/9/23 and 1/10/23, but that the percentage of Apples badly affected increased at the expense of those previously slightly damaged. Locality did not here appear to have any marked influence.

Delayed storage. — Delaying storage of Jonathans has a beneficial effect; in the experiments shown below mature fruit from an orchard on the Moutere Hills was picked and then kept out of store for different periods.

Picked 21/3/23. Examined 13/8/23.

STORE C.

Time kept out of Cool Store.	Flesh Collapse. Bad.	Slight.	Total.
	%	%	%
0 weeks	35	37	72
3 weeks	15	25	40
5 weeks	3	25	28

Prolonging the time before storage will eventually lead to shrivelling, but it appears that delaying storage for three weeks gives good results without shrivelling if the fruit is kept out under satisfactory conditions. Delaying storage for longer than three weeks should be practised with caution, for although fruit kept out for this time should not shrivel, it would almost certainly do so during subsequent storage.

EXPERIMENTS WITH DELICIOUS.

Mature Delicious from two orchards were put into Store A; the influence of locality is again noticeable:—

Date of Examination.	Locality.	Flesh Collapse. Bad.	Slight.	Total.
		%	%	%
1/10/23	Stoke	0	4	4
1/10/23	Wakatu	0	15	15
19/11/23	Stoke	2	9	11
19/11/23	Wakatu	6	25	31

In conclusion, the authors wish to thank all those who have in any way helped in the above experiments, particularly the growers for supplying the fruit and the cool store engineers and proprietors for rendering every possible assistance.

Cold Storage Development in Victoria.

By Our Special Correspondent.

The section of refrigeration of foods which primarily concerns the fruitgrower, is the cold storage of fruit. Some fifteen years or more ago it was a speculative venture, with great possibilities.

As its advantages became known to orchardists, cold stores were built in the various fruitgrowing districts, the natural result being that with increased storage accommodation, the speculative nature was lost, and cold storage became more of an insurance, giving the fruitgrower an opportunity of obtaining better average prices for his crop. At the same time the consumer obtained cheaper fruit thereby increasing the demand.

The advent of cold storage of fruit has placed the consumer in the position of being able to secure wholesome fruit all the year round at reasonable prices, against the old system when there was abundance of fruit at one period of the year, while at the other it became a luxury and within the reach of but few.

The fruitgrowing community as well as consumers, are indebted to the Doncaster fruitgrowers who demonstrated that fruit could be held for a considerable period in cold stores. They subsequently prevailed on the late Sir Thomas Bent, then Premier of Victoria, to build a cold store in Doncaster, guaranteed by the growers against financial loss to the government.

The system extended to other districts at a later date.

When it had been amply demonstrated that cold storage of fruit was a commercial proposition, the growers promoted Co-operative Societies for the purpose of taking over and controlling the stores themselves.

The result was that the government sold the existing stores in the fruitgrowing districts to co-operative bodies of fruitgrowers, and also advanced money on easy terms to orchardists to enable them to erect further cool storage accommodation.

At this stage it was felt that there was room and opportunity for a closer co-operation amongst the various fruitgrowing districts, in the matter of cold storage.

Messrs. J. H. Lang (Harcourt), and J. Tully (Doncaster), called a meeting of representatives of co-operative cool stores, with the result that the **"Fruitgrowers Cool Stores Association of Victoria"** was successfully started.

The Fruitgrowers Cool Stores Association of Victoria was born at a meeting held in Melbourne, in January 1918, and during the first year, nine co-operative fruit cool stores linked up, working together for the furtherance of the industry.

The need for this Association was demonstrated by the fact that the whole of the co-operative cool stores are now affiliated together with five private fruit cool stores making a total of twenty-two cool stores, with a capacity of approximately 700,000 cases. Mr. J. G. Aird has proved to be a capable secretary.

COLD STORAGE CONFERENCE.

The sixth annual conference of the fruitgrowers Cool stores Association of Victoria, will be held at Frankston, about September 2nd. and 3rd. next. It is anticipated that there will be an attendance of about seventy delegates, representing the various affiliated stores.

The agenda paper now in course of preparation will contain amongst the items, "Fuel for Power," by Doncaster West cool Store,—an important subject to the management of all Stores. "Storage Methods and Experiences," by Mr. W. Lipscombe. Other gentlemen requested to address the conference are Sir Geo. Knibbs, K.B., C.M.G., (Director, Institute of Science and Industry), Messrs. D. B. Adam, B.Sc. and J. Hepburn, of Department

of Agriculture, and Mr. H. Louey Pang.

On the second day, a tour of inspection of the Mornington peninsula cool stores will be made. This conference promises to be one of the most instructive and interesting yet held under the auspices of the Association.

FLESH COLLAPSE IN APPLES.

After perusing the bulletin on Flesh Collapse of Apples recently issued by the Cawthron Institute of Nelson, New Zealand, it would appear that the conditions in the Dominion are different from those in Victoria; what is termed "Flesh Collapse" in New Zealand, appears to be identical with what is known in Victoria as "Sleepiness" or "Punk."

The results obtained by their experiments with Jonathan are contrary to experience in Victoria, where Flesh Collapse usually occurs earlier in Jonathan Apples kept out of cool store.

Experiments relative to the keeping qualities of fruit in cold storage at times give surprising results. In one Victorian store, Jonathan Apples were selected for a "Scald" test from two trees in the same orchard. The fruit from each tree was kept separate and showed in the first test lot, that oiled wrappers had advantage of 12½% over plain sulphite wraps; in the second test lot, plain wrappers were 4% better than oiled wraps. It is evident that there are many factors to be taken into consideration.

1924 COLD STORAGE SEASON.

On the whole the present season has not been favourable for keeping fruit, due to weather conditions during the growing period. Most of the fruit likely to deteriorate has now been disposed of. The balance in cool stores, which has the appearance of now holding up well, should meet improved prices generally.

Scald in Jonathan Apples—A reader at Kilsyth, Vic., directed attention in July "Fruit World," page 336, to the varying results in cold storing Jonathan Apples. Replies were then furnished by Mr. D. B. Adam, B.Sc., and Mr. F. W. Wakefield.

A further reply is to hand—from Mr. R. Mair, of Tyabb, Vic. (President of the Fruitgrowers' Cool Stores Association of Victoria), as follows:—

Your correspondent at Kilsyth wants some scientific facts in reference to cool storage. I do not pretend that I can do that, but I can give a few hints gained by practical experiences over a number of years, and if they are of any use, he is welcome to them.

In regard to Jonathans, I find it well to place them in cool store as soon as possible after packing. Judging by the description of the first lot your reader picked, I would have said they were just right for storing. He says he lost 33 per cent. by "scald," which he attributes to the condition of fruit when stored.

Now to my mind, they were subjected suddenly to too low a temperature, and I am sure that is mainly the cause of all "scald." Care must be taken not to allow them to be overripe, or they are liable to go sleepy after coming out. This has been an exceptional season for fruit keeping in cool store, owing to excessive moisture during the growing period, and it is well to keep a watchful eye on any we have in.

It is advisable to store some varieties a few days before putting in cool chambers, or they are liable to "stain," a condition which is quite distinct from "scald," some of the susceptible varieties being Rome Beauty, Rymer, Stone Pippin, etc.

We are very free of "scald" in our store at Tyabb, and we attribute that to the temperature we use. While the fruit is coming in, the temperature is never below 35 degrees; after the chamber is full, we gradually come down to 32 degrees, but never below for Apples: we have a separate chamber for Pears, which is brought down to 30 degrees or 31 degrees.

I trust these few hints will be of some use to your subscriber.

COLD STORAGE AT BATLOW (N.S.W.).

THE DISTRICT OF BATLOW (N.S.W.) is steadily progressing, because of the foresightedness of the settlers, and the fertility of the soil and general suitability for orcharding.

With regard to the development of cold storage and packing facilities, some interesting details are furnished by the Secretary of the Batlow Co-operative Cool Stores Co. Ltd (Mr. H. V. Smith) thus:—

The first cool stores erected at Batlow were commenced in September, 1922, and were completed ready for the 1923 season, the capacity of same being 8,000 bushel cases, and the number of shareholders twenty-three.

The constitution was based on that of Ringwood Cool Stores (Vic.), each share representing one case space, and income to provide for working expenses, etc., being obtained by means of rent calls or levies at so much per case space—made in advance. The total amount called up in this way during 1923 was 2/6 per case space.

Storage results were very satisfactory as regards Pears, and all varieties of Apples, with the exception of Granny Smith, in which "scald" occurred in varying percentages.

The Apples of this variety which were not placed in store till late in the season, approaching the spring months, came out of store in good order, particularly those which had been wrapped prior to storing. When placed in store straight from the tree "scald" developed badly. Delayed storage with the Granny Smith variety therefore proved most beneficial in lessening the occurrence of "scald."

This season oiled wrappers (American and Australian) are being tried on 1,700 cases of Granny Smith Apples as a means of eliminating scald losses. A report as to the results will be furnished later.

During 1923, 16,000 cases odd were stored—shareholders using their storage space, firstly, for Pears, and when these were removed, for late varieties of Apples.

A demand for an extension occurred, and the capacity of stores was increased to 14,400 cases for 1924 season, and a railway siding constructed. The number of shareholders is now thirty-three.

The cost of stores to date has been £9,000 odd, inclusive of railway siding and land approximately 12/9 per case space.

Of the 2/6 per case space per annum at present being charged for rent approx. 1/5 goes to overhead—repayment of loan, interest, depreciation, reserves; and the balance (1/1) to running expenses.

Storage results for 1924 have been very satisfactory to date, with the exception of **Williams' Pears,** which were stored for the first time this year, and in many cases held too long. Approximately 20,000 cases have gone through the stores to date this season. This being a light crop year the quantities of late Apples held are not great.

Most of the fruit going through the cool stores is being handled by the Batlow Co-operative Packing Co. Ltd., practically all of the shareholders of the latter company owning space in the cool stores. It is worth mentioning that whilst in Victoria cool storage of fruit on a co-operative basis has been for some time a feature of nearly every Apple and Pear growing district, in N.S.W. the Batlow Cool Stores are the

first Co-operative Cool stores

to be erected in a fruitgrowing district.

Since the output of the district is growing rapidly, owing to young orchards coming into bearing (next season it is not likely to be less than 100,000 bushel cases) a further extension of stores is expected for the 1926 season.

Much assistance in connection with the Batlow venture has from time to time been rendered us by Messrs. J. G. Aird, of Ringwood; R. Sutherland, of Orchardists' Cool Stores, Doncaster; Colonel Lang, of Harcourt; Mr. D. B. Adam, B.Ag.Sc., Dept. Agriculture, Vic., and we are very pleased to acknowledge the ready help given. We have obtained much valuable information from the "Fruit World."

[A report relative to the Mt. Barker Fruitgrowers' Cool Storage Co-op. Soc. Ltd. will be found on page 388.]

Editor's Mail Bag.

Queries and Answers.

TO POLLINATE DUNN'S APPLES.

Messrs. Robinson Bros., fruitgrowers, Tongala East, write:—"We notice that in the July issue of the 'Fruit World,' a correspondent at Lancaster is recommended to plant "Gravenstein' Apples to pollinate 'Dunn's.' As we have the two varieties planted alongside each other, we can definitely state that in this district, though blooming together, the "Grav." is useless for pollination.

"We have obtained good results from placing blossom of 'Cox's Orange Pippin,' 'Irish Peach' and 'Delicious' in tins in the trees, but the two former are not suitable varieties for this district, and the latter is unfortunately some days behind 'Dunn's' in blooming.

"Acting on the recommendation of Mr. Peart, of Goodman's Nurseries, we have planted 'Jonathans' and 'King Davids' for pollination, and we expect definite proof as to their suitability or otherwise, this coming season.

We are passing this information on, as it would be a pity for your correspondent to work his trees over to an unsuitable variety."

CLEOPATRA APPLE.

What is the Correct Nomenclature?

The statement by a South Australian correspondent in the "Fruit World" that the Cleopatra Apple should really be known as Ben Lomond, is not endorsed by Mr. E. E. Pescott, Secretary of the Pomological Committee of Australia.

Mr. Pescott writes.—The statement that the Apple Cleopatra is synonymous with the variety "Ben Lomond," it being imported from Rivers 65 years ago, cannot be accepted without clear evidence.

The origin of the name Cleopatra is unknown. It is generally considered that Cleopatra is the American Apple Ortley, many authorities accepting this decision.

The Tasmanian name New York Pippin, is the N. Y. P. of Lindley, an Apple not unlike Ortley.

Ben Lomond Apple is quite unknown in Pomological literature except in one instance. It is not listed by Lindley, 1831; nor Hogg, various editions 1859-1884; neither Warder, Downing, Ragan nor Beach mention it in American literature.

Scott, 1872, places it in his list of Apples which are not well known, or which are of recent introduction. In his day, Scott probably knew as much about Apples as anyone else, and he evidently did not know this Apple sufficiently well to describe it.

To the Editor, "Fruit World."

Sir,—On page 312, July issue of the "Fruit World," appears the following:

A correspondent states that the Cleopatra Apple should really be known as Ben Lomond, and that the Tasmanian New York Pippin is different from the so-called Cleopatra.

Will your correspondent kindly inform us in what book on Apples the name "Ben Lomond" occurs? I fail to find it in Hogg's Fruit Manual, Herefordshire Pomona, Beach's Apples of New York, or in the list of Apples known in America from 1804 to 1904, and it would be interesting to know the origin of the so-called Ben Lomond. Also has your correspondent ever examined the internal structure of the Tasmanian N.Y. Pippin and the Cleopatra, and if so, will he kindly let us know where the difference lies?

Soil and climate make a great difference in the size, shape and colouring of Apples, but not in the internal structure.

Yours, etc.,
ANOTHER SOUTH AUSTRALIAN.

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Fruit Importer and Exporter

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49 WILLIAM ST., MELBOURNE, VIC.

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STRIKING CYPRESS CUTTINGS.

Striking Cypress Cuttings.—A grower at Nuriootpa, S.A., asks for particulars re propagating Cupressus lambertiana from cuttings.

Answer.—The propagating of Cupressus lambertiana from cuttings is usually done about May. The method is to obtain a cutting with a heel joint. This cutting is obtained in exactly the same way as a Carnation cutting, except with the Carnation cutting, the leaves are cut and trimmed as well as the heel, with the lambertiana cutting the only trimming done is to make a neat job of the bark at the heel joint. Obtain the cuttings from the lateral shoots of the lambertiana. The cuttings should be about 3 inches long, and are obtained by giving the intended cutting a sharp pull, which brings it from the parent branch complete with a "heel." The cuttings are then struck either in the open ground or preferably in a pot containing sand. Washed river sand is best.

MIXING RED OIL FOR SPRAYING.

(To the Editor, "Fruit World.")

Sir,—From time to time, in the columns of your valuable journal, I notice remarks re the above subject, from which it would appear that some orchardists have trouble in obtaining satisfactory results. I have been a user of Red Oil for quite a number of years, and by following a simple process, have obtained excellent results.

My method is as follows:—

Put the amount of crude oil required for one pumpful in a clean kerosene tin. Then take a second kerosene tin bucket, into which put about half a handful of washing soda, adding about a gallon of either hot or fairly warm water. Next pour the contents (crude oil) from the first tin into the one containing the washing soda and water. Pour the lot back into the first tin, adding a little more water if required.

Repeat this process of pouring from one tin to the other about half-a-dozen times, and by this means no trouble will be experienced in getting a perfect mixture.

If the contents of the tin be then put into the spray pump and ordinary rain water from underground well or dam used to make the necessary quantity, no damage will be done to the trees.

It is always well to let the engine run for a minute or so before spraying.—Yours truly,

"SPRAY GUN."

FERTILISING CITRUS TREES.

In our May issue we published information relative to a successful experiment in the manuring of citrus trees, carried out at the orchard of Mr. H. H. Giles, "Burnside," Kurrajong, N.S.W. Trees manured with superphosphate and potash 8lb. per tree, yielded 81 cases per acre. In another plot, trees manured with the same fertilisers plus 4lbs. per tree Nitrate of Soda, yielded 392 cases per acre.

A subscriber of Bondi, N.S.W. in referring to the above, asks at what time of the year the fertilising was done, and if the quantities mentioned were applied simultaneously.

Answer.—The phosphates and potash mixture—8lb. per tree, (4lb. being applied about the middle of July in each year, and 4lb. at the end of February each year.)

The Nitrate of Soda was applied as follows.—1lb. per tree immediately following the application of the other manures; a second dressing of 1lb. per tree 3 to 4 weeks later, rain having fallen during the interval. The usual dressing for citrus orchards in full bearing is 5lb. per tree of Nitrate of Soda, following the application of a phosphatic and potassic mixture,—2½lb. to be applied in two applications during February or March, the balance of 2½lb. during July and August.

SELLING CITRUS FRUIT.

To the Editor, "Fruit World."

Sir,—Recognising that the "Fruit World" is the growers' paper, my Association asks permission to correct some misstatements recently published in the July "Citrus News" issued by the Victorian Central Citrus Association, in which it is stated that the commission on Queensland Oranges, Pineapples and Bananas is 7½ per cent. less a rebate to the Queensland Committee of Direction.

The fact is that the commission is 10 per cent. nett on Oranges, and on all other fruits except Pineapples and Bananas. With regard to Pineapples, the commission is 10 per cent. less a rebate of 1 per cent. provided that the Pines are sent only to members of Wholesale Fruit Merchants' Association; whilst regards Bananas, the trade is on an entirely different basis, the fruit being sold in bulk to ripeners who then do the distributing.

In the same paper the market representative of the V.C.C.A. reports "that a small percentage of fruit went to unauthorised agents during the month of June, largely as a result of plausible propaganda carried out in V.C.C.A. districts." The report is inaccurate. More Victorian Oranges were being received by members of the Wholesale Fruit Merchants' Association of Victoria for sale on commission from V.C.C.A. districts than by the agents appointed by the V.C.C.A.

My members are advised by growers that the prices returned by them are higher than those received by agents outside our Association. The prices returned are correct in every detail, as a perusal of their books will show,—Yours faithfully,

Wholesale Fruit Merchants' Association of Victoria,
J. D. FRASER,
Secretary.

Melbourne, 25/7/24.

BUD SELECTION OF APRICOTS.

Mr. Geo. A. Green, Secretary of the N.Z. Association of Nurserymen (Inc.) writes:—"I was in Central Otago during March, where the Bud Selection Committee of the Teviot Branch of the Institute assisted in the selection and packing of 25,000 Apricot buds for propagation purposes; all these are certified as O.K. by the Selection Committee. This is a big point ahead in the correct naming of nursery stock. I hope the day is not far away when the whole of the buds used in this Dominion will be certificated.

Borsdorffer Apple.

Mr. C. W. Giles, of Norton Summit, South Australia, writes to say that the Apple "Borsdorffer," to which he referred in his notes last month, is a German, not a Russian Apple. He writes:—"I regret making the error. It is very evident that I was thinking of something else, as 'Borsdorffer' is a dessert Apple brought from Germany by the late Queen Charlotte on her first arrival in England, and was planted by the late Mr. Acton in the Kew Gardens, being called in England 'George the Third.'"

The "Fruit World" Thanked.

That Troublesome Sugar Question.

South Australia says the present position is unsatisfactory.

The President of the South Australian Fruitgrowers and Market Gardeners Association, (Mr. C. W. Giles) writes under date July 10th.—

"The article on the sugar question in the June number of the "Fruit World" ought to be printed and circulated among the fruitgrowers. I must compliment you on the very able manner in which you have handled the matter. I feel sure that sooner or later you will see the results bearing fruit, as it is obvious to us all that the Sugar Question will have to be settled to the satisfaction of the fruit growing industry. Accept my many thanks as a fruitgrower for this splendid article."

New South Wales.

Murrumbidgee Irrigation Area.

Soldier Settlers to Receive Freehold.

Committee to Consider Writing Down Indebtedness.

In connection with the recent visit of the N.S.W. Minister for Agriculture to the Murrumbidgee Irrigation Area, it is reported that the Cabinet has agreed that in addition to granting a freehold title on equitable terms, a special committee of investigation should be appointed to make full inquiry into the question of writing down the indebtedness of the soldier settlers to an amount which would afford relief to those justly entitled thereto.

The personnel of such committee, states the Premier, will be announced as soon as the Minister for Lands has conferred with the Federal authorities regarding the appointment of a Commonwealth representative on the investigation committee.

Hills District Show.

Glenorie.—The fourth annual fruit and flower show of the Hills district, will be held at Galston on Sept. 13th. next.

Major G. H. Parker is President, and Mr. F. A. Nicolson (Glenorie), is the Hon. Secretary.

There is every indication that last year's successful show will be eclipsed on this occasion; some new classes will be added.

The N.S.W. Central Citrus Association is donating a Cup, value £10/10/-, for the best three cases of citrus fruits. The competition is open to Packing Sheds and members of the Citrus Association.

AUSTRALIAN FRUIT EXPORTS.

Grading Regulations Criticised.

"Useless and Expensive."

An interesting review regarding the importation of Australian Apples into England is contained in a report from Messrs. F. W. Moore & Co. Ltd., London, dated 1st May, in the course of which it is stated that the 1924 season for Australian fruit opened most inauspiciously, and the growers of the fruit must have been sadly disappointed when the cabled prices appeared in their newspapers.

Whilst it is true enough, the report goes on to say, that so far, at any rate, as Australia is concerned, that the absurd regulations under "The Commerce Act" of Australia damned the fruit long before any of it reached these shores, the enormous supply of Apples, principally from the United States is **the real reason** for the distressingly low prices realised both at auction and in private sale-rooms. The first ten or twelve cargoes from Australia last year were in competition with at least 550,000 cases of North American Apples; this year the quantities from the U.S.A. and Canada, within the same period, were almost, if not quite quadrupled, there being at least two million cases offered. If the Imperial Conference proposals for Empire preference on fruit had been instituted even in modified form, what a difference would have resulted!

Complaints are very general concerning the branding of cases with the words, "Special," "Standard," "Plain," "Blemished." Not only have very many of the Apples in cases branded "blemished" turned out cleaner and better than those in cases bearing one or other of the higher-grade brands, but buyers say they do not see much difference between Special and Standard, or Standard and Plain. Briefly and broadly, all this marking is useless and causes extra expense in handling. In the latter, excessive sorting is necessary for cataloguing for auction sales and piling in private sale-rooms; it is useless because buyers do not take the slightest notice of marks on the cases other than that of the variety, and in some instances of the grower's brand, but invariably demand the opening of the cases so that they can see the fruit itself.

The Curing and Marketing of Lemons.

Important News for Growers.

Lemons Properly Cured will Keep 6 Months. No Need for Importations.

Some Practical Hints.

AT THE AUSTRALIAN CONFERENCE of Fruitgrowers, which recently met in Hobart, great interest was aroused in regard to the subject of the importation of Italian Lemons.

Mr. H. Wicks, a well-known fruitgrower and nurseryman of wide experience, stated that Australia grew sufficient Lemons for her own requirements, and there would be no need for importation if growers would cure the fruit, which should thus keep for six months.

In further explanation, Mr. Wicks has kindly supplied the "Fruit World" with the following important information:—

Lemons should be Cured.

Whilst every care is being exercised in handling Washington Navel and Valencia Oranges for export, and growers are being instructed regarding careful handling of the fruit, and several large packing sheds are in existence where grading and packing are carried on so that nothing but the best shall be sent away, what is being done for the Lemon grower?

I have not heard of one district where an attempt is being made to cure and hold the fruit.

I understand that more than 10,000 cases were imported during the last twelve months, many of which cost 18/- per case, duty paid.

Australia can and does grow all the Lemons required for Australia and New Zealand, and can have plenty for every month, but not as the fruit is being handled at present.

Present Methods are Wrong.

The method adopted in South Australia is as follows:—

(1) A merchant receives an order from New Zealand or Queensland for Lemons; (2) the fruit is ordered from the growers, it being stipulated that the said fruit must be green or only just turning colour; (3) the growers pull or pick the fruit, and put in bushel cases; (4) the fruit is then sent to town and (5) is then wrapped and packed and sent away by train or boat, often within four or five days after being taken from the trees.

I am never surprised to hear that this fruit arrives in bad condition, and is not first-class.

If no orders come along, or insufficient orders are received, the fruit is allowed to ripen on the trees, and is then only suitable for factory purposes. Ripe Lemons are useless for export or interstate trade; if the factories are not buying, the fruit just drops on the ground and rots.

What Should Be Done.

This system is all wrong, and if we intend supplying Australia and New Zealand with good Lemons all the year round, quite a different system must be adopted.

In the first place, if the fruit is intended for export, or to be held for local trade, it must never be allowed to ripen or become quite yellow on the tree.

Secondly. Every fruit should be clipped with as short a stem as possible. ("Never pick or pull the fruit from the tree if it is to be stored.")

Thirdly. Be sure the skin is not scratched or bruised in any way.

Place the fruit in boxes or trays (about 3 or 4 layers of fruit are sufficient), the boxes or trays can then be stacked in a dry shed and left from 14 to 21 days or longer if the weather is cool; cases must be stacked so that air can circulate between them.

During this time the Lemons will lose a good deal of surplus moisture; the skin will get tougher and thinner and not so likely to bruise. At the end of the period mentioned the boxes can be stacked in a cellar or any cool dry place, where air can be admitted. If the fruit shows any signs of shrivelling, sprinkle the floor with water at night.

After the fruit has been

Sweated for Three Weeks,

it can be wrapped and packed in cases, and the cases stacked up in such a way that air can circulate; after this fruit has been stored for two months, it will be found that they are perfectly yellow, skin much thinner and full of juice.

The trees should be gone over every six weeks and all fruit fully grown, if of required size, should be clipped and taken into the shed to be sweated down. It does not matter if the fruit is quite green, if fully grown.

I am of opinion that if the

Citrus Growers' Association

could be induced to take this matter in hand and cure, grade and pack for the whole of a district, far better results will be obtained, and a far better and more satisfactory class of Lemons obtainable at a better price to the grower, and a lower price to the consumer.

A few years ago America was importing most of the Lemons she required, but what is the position today? California is growing, curing, and marketing enormous quantities, and at the present time New Zealand is quoting American Lemons at 40/- per Californian case.

At the present time Queensland is importing Lemons from South Australia, the fruit must be green or only slightly tinged with yellow.

Why?

Because the merchants are fully aware that if they allow yellow fruit to be sent the present ripe winter crop will be picked and forwarded, and they know these Lemons are coarse, deficient in juice, and will not keep very long, and are only fit for factory use: but if the same fruit had been clipped from the trees two months ago, they would now be in first-class condition.

I have no doubt we can obtain the latest American methods of handling Lemons, and if instructions are car-

ried out, importations will cease, and the Australian growers will reap the benefit.

By this day's train I am sending to you, Mr. Editor, a small box of Lemons. This fruit was clipped from the trees during first week in March, and at the present time the loss from decayed fruit is not 1 per cent. I have grown all of the following varieties: — Lisbon, Eureka, Villa Franca, Malta, Sicilian, Genoa, but dot not think we have anything more suited to this district than a good type of Lisbon.

Yours faithfully,
H. WICKS.

Payneham, S.Aust., June 20th, 1924.

[Lemons received. Quality excellent.—Editor, "F.W."]

"EAT MORE CITRUS FRUIT."

The Victorian Railway Department is doing further good by advocating the eating of citrus fruits in a bulletin published by them, entitled, "Eat More Citrus Fruits."

After describing the health values of citrus fruit, the pamphlet goes on to state that the cheapest and best way to obtain citrus fruits is to order direct from the grower. "Write to the District Secretary, Citrus Association, or Packing Shed Manager of the undermentioned places, stating the kind and quantity of fruit required, and the address to which it should be sent. Enclose postal note or post office order for the amount of the purchase, including rail freight and road cartage, if you desire carrier's delivery from the station to your door."

The following are the districts of the Victorian Central Citrus Association, and the addresses of the various secretaries:—

Where Citrus Fruits can be Obtained

District.	Nearest Railway Station	Mileage from Melb.
Bamawm	Lockington	147¾
Cobram	Cobram	155¼
Irymple	Irymple	347¾
Mildura	Mildura	351¼
Shepparton	Shepparton	113
Swan Hill	Swan Hill	214½
Tresco	Tresco	201½

Secretary's or Manager's Address.

Bamawm Citrus Growers' Co-operative Assn., P. Cobbett, Sec., Lockington.

Cobram Fruit Packing Co. Ltd., W. S. Tuck, Sec., Cobram.

Irymple Packing Co. Pty. Ltd., P. Malloch, Manager.

Mildura Co-operative Fruit Co., A. S. Hopkins, General Manager.

Shepparton Orchards Products Ltd., W. Stewart, Mgr.

Swan Hill Citrus Growers' Assn., A. Luke, Secretary.

Tresco Fruit Growers Co-operative Assn., J. P. Greenwood, Manager.

Rail Freights.

The booklet contains details as to rail freights, half-case and two or more cases, and also gives the names of the railway stations in the Melbourne suburbs which are open to this traffic.

Fruitgrowers are specially asked by the Railway Department to note the following hints:—

Fruit forwarded by fast goods or mixed trains throughout the State, except from Mildura, Merbein, Irymple, Redcliffs and stations north of Ouyen, is generally available for delivery in Melbourne on the day after despatch. From the stations excepted it is usually available on the second day after despatch.

When consignments are to be sent from the country to a destination reached via the transfer junction stations of Melbourne, Bendigo, Ballarat or Geelong, the "nominated days of loading" folder which is obtainable at the local station, should be consulted, and the fruit consigned early on the day prior to the loading day for whichever of those junction stations is concerned, so as to ensure connection being afforded and delays obviated, except from the Mildura district, when the fruit should be consigned two full days before the loading day for the junction station concerned.

The address must always be affixed to one end of box or case.

Each package, in addition to the full postal address of consignee, must bear the name of the destination station. The name of the sender, forwarding station, and the date must be shown on the left hand top corner of the address label.

At Melbourne and some suburban stations carriers under contract with the Department collect consignments, and if delivery be not desired by this means, the words "to be called for" should be added to the address.

Consult the local stationmaster when in doubt, regarding the despatch of fruit by goods or passenger trains.

Copies of the abovementioned pamphlet are obtainable on application to the "Fruit World" Office, 9 Queen-street, Melbourne.

NEW SOUTH WALES.

Citrus at Glenorie.

Mr. F. A. Nicolson, Glenorie, reports under date June, 23rd.—

Oranges.—(Common) and Valencias, (Navels are not largely grown in this district), generally light to medium on old trees, and good on young ones.

Mandarins.—Light on old trees, good on young trees.

Lemons.—Medium generally. I consider the total Citrus crop will be a little lighter than last year. Weather has been mild up to date, but rain is required.

SOUTH AUSTRALIA.

Citrus Crops Medium.

"Too Great a Difference in Price Between Producer and Consumer."

Mr. H. Wicks, of Riverside, Payneham, Sth. Australia, writes, 17/7/24:

Re citrus prospects, the crop is only medium. I am not in a position at present to give the acreage, but I do not think there is any or very little increase during the past two years.

Regarding **marketing,** we know quite well there is too great a difference betweenthe price the producer obtains and the consumer pays for his fruit, and the answer is, the fruit can, and must be, put into the hands of the consumer at a lower cost, and in my opinion the only way is by getting **the whole of the industry thoroughly organised on the Californian system,** and by supplying country towns and country villages with first-class fruit of best quality at a moderate price.

ALGERIAN CITRUS EXPORTS.

In 1922 Algeria exported Oranges and Lemons to the extent of 76,788 metric cwts. and Mandarins 126,955 metric cwts., 99 per cent of which were sent to France.

CHINA EXPORTS ORANGES.

Official reports from China indicate that exports of fresh Oranges from the port of Swatow in 1922 were less than the previous year, states the "Monthly Bulletin of Information on Refrigeration," the plantations of Orange trees having been partly devastated at the time of the typhoon. Moreover, the seamen's strike had disastrous effects on that article, for owing to lack of boats, the greater part of this fruit rotted whilst waiting for a problematical shipment. According to the statistical report of the Commissary of Chinese Customs at Swatow in 1922, the export of fresh Oranges showed a decrease of 11,800½ tons. Of this quantity, 5,960 tons are supposed to have been destroyed at the time of the typhoon, and 5, 840½ tons rotted on the spot during the strike.

Packing Citrus Fruits.

An important illustrated article on the packing of citrus fruits is published on pages 362-3-4.

APPRECIATION.

Woorinen North (Vic.),
June 10, 1924.

To the Editor, "Fruit World."

Sir,—Kindly find enclosed postal note for 8/6, being payment for one year's subscription in advance. Wishing you further success with your valuable monthly.—A.C.B.

Crisis in Dried Fruits Iudustry.

Federal Government Offers Assistance.

THE SERIOUS CRISIS which is now confronting producers of dried fruits is being faced by the leaders of the Australian Dried Fruits' Association. The outstanding factor which has brought about the crisis is that the acreage under dried fruits has recently increased by many thousands of acres, largely on account of the action of the Government in placing returned soldiers in this industry. The production has jumped from 20,000 tons to 35,000 tons. The local market cannot absorb the crop, whilst the export market is unfavorable, and over 25,000 tons must be exported.

For many years past the Australian Dried Fruits Association has been a guiding and controlling factor, stabilising local prices and deciding on the quantities which had to be exported. There were always certain growers who remained outside the A.D.F.A., which the Association has regretted, as when export prices were high the "outsider" shipped and got the advantage, whilst the A.D.F.A. retained the fruit in Australia and sold it at less than export parity, to keep faith with the Australian public, which has granted the 3d. per lb. duty. Yet when export prices are low and there is a surplus in Australia, the "outsider" retains the fruit here, leaving the A.D.F.A. growers to export at a loss in order to maintain the market here.

It is most desirable, in the interests of all concerned, including the "outside" growers themselves, to solve the present problems unitedly.

FEDERAL GOVERNMENT ASSISTANCE.

Bonus on Exports.

Details of the Federal Ministry's offer of assistance to the dried fruits industry are contained in the announcement by the Prime Minister (Mr. Bruce) on July 29th.

The Federal Ministry will guarantee a minimum monthly advance to settlers, based on the quantity of fruit exported by the grower in 1924, the guarantee not to exceed:—

On the export quota of the applicant:—On **Currants**, 5/-; on **Sultanas**, 30/-; on **Lexias**, 30/-.

Conditions are attached to the guarantee including (1) the money advanced must be used solely to carry on operations upon the block; (2) the grower to retain from the proceeds of the 1925 crop the amount advanced plus 6 per cent. interest. Thus, the intention of the advance is to temporarily assist the industry in its crisis to give the growers an opportunity to effect complete reorganisation.

The Prime Minister stated that complete reorganisation of the industry was necessary. Growers must organise to reduce the cost of production by improved marketing and cultural methods. The Ministry would only assist those producers who were prepared to help themselves, and it would not attempt to bolster up an inefficient industry.

The Ministry was satisfied that with proper organisation the dried fruit production could again be placed on a profitable basis. In the near future it was hoped that preferential arrangements within the Empire would enable the industry to become an important field for the settlement of British migrants.

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DRIED FRUITS AT WEMBLEY.

The Secretary of the Australian Dried Fruits Association, Mr. W. N. Sumner, has received a letter dated 11th. June, from their London Manager, Mr. W. P. Caro, he writes as follows.—

"I am delighted to be able to report to you that the sales of our fruit in Cartons at Wembley are going ahead by leaps and bounds, and when we started off by taking £4 or £5 per day, you will be gratified to know that on Saturday last we took over £90, on Monday £230, and on Tuesday £130. The progress we are making is really astonishing and I feel confident that the publicity value we are getting for our fruits is tremendous. Our sales at Wembley for the last eight days were approximately 50,000 Cartons, of Sultanas and Currants, principally in the 3d. and 6d. size."

Tasmania.

Annual Fruitgrowers' Conferences.

THE ANNUAL CONFERENCES of Tasmanian fruitgrowers were held at Launceston and Hobart on July 18th and 19th, at both of which there was a large and representative atttendance of fruitgrowers.

The Hon. Minister of Agriculture (Mr. J. Belton, M.H.A.), in opening the proceedings, stressed the need for concerted action amongst the producers to improve marketing conditions. The Minister advocated earnest co-operation, especially towards the employment of

scientific investigation

into the matters of disease and pest control. The officers of the Fruit Division would be entirely at their disposal, and facilities provided for essential field operations.

State Fruit Advisory Board.

Five members represent the southern, and 3 the northern centres. Ballots were taken under the Hare-Clark system of voting, the following being elected to the board for the coming year:—Messrs. H. D. Calvert, M.L.C. (Geeveston), A. Davies (Cygnet), B. J. Pearsall (Kingston), T. J. Eddington (Bagdad), V. Shoobridge (New Norfolk), Neil Campbell, M.H.A. (West Tamar), F. Walker (Lilydale), J. H. Astell (Spreyton).

It is gratifying to the members that the fruitgrowers of Tasmania showed their confidence in their actions of the past year by making practically no change in the personnel, and accorded them a vote of appreciation for the services rendered.

The Secretary (Mr. P. H. Thomas) presented the annual report, also the balance-sheet of the Fruitgrowers' Defence Fund. The total expenditure for the year amounted to £729/9/-, leaving a credit balance of £5,089/5/3, of which £5,000 has been invested in 1930 6 per cent. Commonwealth stock.

Bounty on Fruit Exports.—Mr. Neil Campbell, M.H.A., outlined the action taken by the Australian Fruit Council in respect to their application to the Prime Minister for a bounty on fresh fruit exports. He moved:—

That the Federal Government be requested to take into consideration the matter of making provision for a bounty on the basis of 1/6 per case on fresh fruit (excluding citrus) exported overseas. Carried.

Organisation of Fruit Industry.—The following resolution was carried:

That a voluntary levy of 1-16d. be made on all fruit exported for the organisation of the industry.

It was estimated that such a levy in a normal export season would bring in £700 per annum, and so as the fund should be equitably spread over the whole industry, the Advisory Board was instructed to prepare a scheme so that berry fruit and other

producers should contribute on the same basis.

At a subsequent meeting of the new Board the Secretary was empowered to get into touch with shipping companies and agents and arrange for the collection of the fund.

Bank Exchange on Freights.—Mr. J. P. Piggott, M.H.A., stated that this was a vital matter. This season the total amount paid by fruitgrowers in exchange would approximate £12,000. He moved:—

That this Council recommends the Federal and State Governments to instruct the High Commissioner and the several Agents-General in London to meet the Fruit Agents' Federation in England and shipping companies with a view to abolishing the present system of paying freight on fruits at port of despatch, and not at port of destination, as is done by all other countries excepting Australia, in order to save the heavy expense of exchange which has to be met by fruitgrowers. Carried.

Control of Markets.—In introducing this matter, Mr. F. Walker asked, "How many fruitgrowers were satisfied with the returns they received?" He detailed to the meeting the results of his investigations in London, and stressed the necessity of having some organised control on the markets. If this were brought about, prices would be materially increased, and better regulation of distribution would minimise the danger of a glut occurring. He moved—

That it be a recommendation to the incoming Advisory Board that a subcommittee be formed to investigate the marketing of fruit with a view to exerting some control of prices. Carried.

Overseas Grades for Export.—Owing to the controversy which had taken place in the respect to these grades and the criticism evoked by London agents, a good deal of discussion eventuated in respect to the merits and demerits of the system. Fruitgrowers at both Conferences showed a desire to give the standards in force a trial, and were unanimous that it was time that such were fixed against alteration. Mr. C. Cane moved:—

"This Conference supports the operation of the grades for overseas fruit exports as at present constituted, viz., Special, Standard and Plain, and recommends that no further alteration in these be effected. Carried.

Export of Pears.—Mr. T. F. Locke brought to the notice of the Conference the disability which existed in respect to Pear export, several consignments this season being spoilt through delays in loading on the Hobart wharves. He moved:—

That the Federal Government be requested to make provision at the ports of export of sufficient cold storage space to accommodate shipments of Pears whilst awaiting loading. Carried.

Department of Agriculture Packing Classes.—Several growers emphasised the need of obtaining qualified packers and the difficulty of securing same. Mr. E. Reed complimented the Department of Agriculture upon the good work that was being performed in the district packing classes. He moved:—

That the Department of Agriculture be requested to continue these classes throughout the coming season, and that facilities be provided so these can be conducted in all fruit centres. Carried.

Temperatures of Fruit Cargoes.—Dr. V. Shone stated he had come into contact with numbers of marine refrigerating engineers, and that they had generally advised that it was not possible to reduce the temperature of fruit cargoes to 34 degrees F. within three days of loading, as was advised by certain agents. He moved:—

That inquiry be made into this matter with a view to ascertaining the practicability of these suggestions. Carried.

H. M.
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TIRED OF MEDICINE.

A man walked into Dickson's Pharmacy at Geelong, and asked if A.M.S. really cured Indigestion. He had a weak stomach and a poor appetite, and loss of sleep and despondency had made him desperate. "I've tried almost everything!" he said dispiritedly, "and I've lost faith in the wonderful cures I read about." It was explained to him that A.M.S. was simply the juices of certain herbs, which helped the food to digest and toned up the stomach, and that his stomach was craving for these precise juices. He tried A.M.S., and it cured him. Why not try it yourself? All chemists 3/-, or by post 3/6 a bottle from T. A. Dickson, Chemist, Geelong.

"Man's Conquest of Time."—A moving picture of educational value was screened at Melbourne on July 17, entitled "Man's Conquest of Time." The picture showed the development of traction from the earliest times, culminating in the motor car. The extensive works of the Chevrolet and Cadillac Motor Works in U.S.A. were shown on the screen. Of the former, 800,000 motor cars are turned out annually, i.e., one every twelve seconds of the working day.

The picture screened was under the auspices of S. A. Cheney Motors Pty. Ltd., agents for the Chevrolet, Oldsmobile, and Cadillac motor cars, 22 Flinders-street, Melbourne.

Canned and Preserved Fruit Department.

News and Notes.

VICTORIA.

Bairnsdale (11/7/24).

There was a good crop of **Clingstone Peaches at the Bairnsdale Cannery** this season, and the quality left nothing to be desired. The chief variety is the Goodman's Choice, which is a great bearer of a wonderful quality canned article. Next come Phillips, Sims, Golden Queen, Tuscan and Pullar's—the last-named grows too big and coarse, as a rule, in the strong soils of this district. Some of the new varieties give great promise, and much is expected of Peak and Selma.

In common with other canners, the "pack" was sold straight "off the cook," and it now looks as if the bogey of over-production had received more than a big fright.

Of late years, **Apricots** have been planted to some extent in the hill country surrounding the town, and a first-class fruit in every way fit for canning has been grown. Leading varieties being Tilton, Blenheim and Trevatt.

Bartlett (Williams') **Pears** are grown, but not to any large quantity. On the whole, prospects now are much better than since 1921, so that growers can step out in the planting of high class quality fruit for canning with much greater confidence than during the past two years.

Shepparton.

Apricots.—In regard to handling the various fruits at the Shepparton (Vic.) Fruit Preserving Co. Ltd., commencement is made with Apricots in the varieties Moorpark, Hemskirke and Mansfield Seedling, which generally ripen about December 21st or 22nd in quantities large enough to open the works. These are followed with Blenheim four days later, and Tilton from five to six days later, the last two kinds, in the opinion of the manager, Mr. T. H. Peart, standing out on their own for canning varieties. Rose De Vaucluse, which is considered a good quality Apricot, comes in about the 28th December, but it is rather on the small side for canning requirements. Campbellfield Seedling and Royal are also used for jam making only.

Pears.—The only variety of Pears handled is the Bartlett, commonly known as "W.B.C.," as this has been proved to be the only variety fit to put up a first-class pack with, although there are a few Packhams and Keiffers packed. The first Pears are generally received in the last week in January (green) which are ripe for canning in ten to fourteen days after delivery. Pears are received for five weeks each year, which gives the growers ample time to harvest, and also enables the factory to put up a larger pack than if they get them all in, say, three weeks. Herein is the disadvantage of not having cool storage space.

Peaches.—Free Stone, Elbertas, which come in on January 22nd to 24th, followed by Kia Ora on the 28th January, are the only two varieties handled at the Shepparton factory, although there are others used by canners, such as Lady Palmerston, Lovell and Solway.

In regard to Cling Stone, Tuscans are received on January 23rd and Levis on January 24th, but up to the present time only small lots of these two varieties have come to hand. They, however, should prove a good proposition for the grower, considering they come in at the slack period between the Apricots and Pears. The Sims variety, which comes in about the middle of February, is a good canner, but it arrives in the midst of the Pear glut, following on with Phillips on 26th February. Goodman's Choice and Golden Queen are to hand the first week in March, which varieties also clash with Pears, but not to the same extent as the Sims. They are considered the best canners, both for quality and appearance. Then somes Pullars from March 8th to 10th, which generally run till the end of the first week in April. The latter is a good variety Peach for the grower, but does not reach the standard of some of the other cling stones as a canner, and it has been found almost impossible to get the export pack from a ton of Pullar's as is the case from some of the other varieties mentioned.

The following table shows the quantities processed each year, indicating the growth of the industry as far as Shepparton is concerned:—

Season 1918-19, 1,068 tons; 1919-20, 2,783; 1920-21, 2,570; 1921-22, 3,166; 1922-23, 3,070; 1923-24, 3,890.

Shepparton Cannery.

That big losses were sustained by the Shepparton Fruit Preserving Co. in the last three years was stated in the Arbitration Court in connection with the new log claimed by the Amalgamated Food Preserving Employees' Union of Australia. The net result of the operations for 1920-21 showed a loss of £29,572 for the season. In 1921-22 the loss was £37,503. The company had operated independently of the Commonwealth Fruit Pool, whereas other canneries had worked under pool conditions. During the season 1922-23 the company came under the Commonwealth Government pool, and the result was a loss of £4,315. The company is now operating under the bounty system, which system has enabled the concern to come out satisfactorily this season. Sales have been good, because the prices have been kept down on account of the bounty.

NEW SOUTH WALES.

Leeton Factory.

The Leeton cannery, on the Murrumbidgee Irrigation Area, completed the season's run for a total of 2,752¾ tons, comprising Apricots, 457¾ tons; Freestone Peaches, 618¼ tons; Clingstone Peaches, 1,598¾ tons; Pears, 78 tons. A percentage of this fruit was put up as jam, and the canned products warehoused in the usual No. 2 cans as choice, standard and seconds, worked out as follows:—Apricots, 38,733 doz.; Freestone Peaches, 36,831 doz.; Clingstone Peaches, 133,317 doz.; and Pears, 4,261 doz.; total, 253,142 doz.

The prices paid for the fruit at the cannery were as follow:—Apricots, canning, £10 per ton; do., jam, £8; Freestone Peaches, canning, £7; Clingstone Peaches, superior canning, £10; do., Pullar's Cling £9; Pears. Bartlett, first quality, £10.

Next Season's Crop.

The financial results of the cannery's operations will not show up as favorably as in the previous season, nor as much so as would have been the case had the settlers made as full use of it as they might have done. The Irrigation Commission is prepared to tackle the whole of next season's crop of canning fruits on the areas, and is asking settlers to enter into contracts for the coming season's fruit at the same range of prices as was paid this year.

It is proposed to require settlers to tender all their canning fruit—not to accept part and leave the balance to be otherwise disposed of. In the event of there being a surplus over factory requirements in any line it will be the responsibility of the commission to make arrangements for its disposal.

The settlers ask the commission to go further, and have under consideration proposals to invite the commission to give them a five years' contract.

There is an estimated sugar surplus of 80,000 tons. As the world's parity is lower than the Australian price, the suggestion has been put forward that the Federal Government should provide a bounty on export.

Fruitgrowing under Irrigation

SEASONABLE CULTURAL NOTES

PRUNING COMPETITIONS

(By Our Special Correspondent)

Frosted Citrus Trees.

THE most noticeable features in the weather records of the Mid-Murray Irrigation Areas during the past few weeks, is absence of rain and the prevalence of frosts.

In situations where air drainage is more or less imperfect, citrus trees have been severely cut. In some instances young trees ranging from one to four years old, have the foliage destroyed over the whole of the tree, the tender shoots have also been cut.

Frosted trees should not be pruned at the present time, as it is impossible to judge from which buds new shoots will arise. Trees that are pruned early are liable to die further back than if left untouched until the spring growth appears. The trees should be left until the new shoots have grown an inch or two in length, the branches may then be treated, the dead wood cut away, and the trees re-shaped.

Ploughing.

Ploughing of the vineyards and orchards should be pushed on apace in order to have the land in good tilth before spring sets in. Late ploughing has but little to recommend it, in fact it has more disadvantages than advantages when compared with early and mid season ploughing. Late ploughing leaves the soil, especially where it is of clayey texture, in a very lumpy condition. These clods of soil are difficult to break down, and it is only with great difficulty that a good tilth can be obtained. Lumpy soil means air pockets, large air pockets mean that moisture cannot be retained in the soil to the same degree as it is in a soil where a good top tilth is obtained.

Soil left unbroken throughout the winter months becomes more or less consolidated, and with the approach of the warm spring months, soil moisture is lost by capillary attraction and intense surface evaporation.

When the soil is ploughed, the moist land is brought to the surface, and the dry top soil turned under, the moisture evaporates on exposure to the air, thus drying out the ground.

River Murray Pruning Competitions, South Australia.

Annual Pruning Competitions were commenced some four years ago in the Waikerie, Moorook, Berri and Renmark Irrigation Areas, since then competitions have been commenced in the Cadell and Mypolonga areas.

These competitions were started with the object of establishing throughout the river areas, uniform methods of pruning the various trees and vines usually grown in these districts. The judges at the championship competition held at Berri on Thursday, July 17th, stated that the competitions were accomplishing the object for which they were initiated. The pruning in all the centres was on a much higher plane than that of previous years.

The competitions are divided up into six classes, viz.—Apricot, Peach and Pear, in the tree section, and Sultana, Currant, and Gordo, in the vine section. Competitors gaining 80% of the total points allowed in the various classes were awarded a certificate of proficiency in their respective class.

The first three competitors in the vine and tree sections in the various district competitions, were eligible for the championship competition, provided they had obtained at least two out of three certificates, and seventy-five per cent of the total points in the section.

For the winners in the championship events, the South Australian Gas Company presented two silver cups, and the committee, gold medals for the second and third competitors.

The Judge, (Mr. C. G. Savage, Deputy Horticultural Instructor), acted throughout the whole of the competitions, he was assisted by the following consultative judges in their respective districts,—Mypolonga, Mr. E. Leishman (Orchard Instructor); Moorook, Mr W. R. Lewis; Waikerie, Messrs. H. Lehmann and B. Pickering; Cadell, Messrs. W. R. Lewis and B. Pickering; Berri, Messrs. W. R. Lewis and H. F. Levien; Renmark, Messrs. F. H. Basey and F. Cole; Championship, Messrs. W. R. Lewis and F. Hooper.

In the championship competitions the competitors who obtained the first three prizes in each section were.—
Tree Section.—Silver Cup,
L. A. Chapple, Berri, .. 262 points
Medal, E. Miller, Waikerie, 259 points
Medal, C. P. Smith, Waikerie, ... 256 points
Vine Section.—Silver Cup,
Paul John, Renmark, .. 273 points
Medal, B. C. Niehus, Renmark, ... 264 points
Medal, J. Virgo, Waikerie, 263 points

Owing to pressure of space we were unable to publish the names of other certificate winners, but these will be included in the next issue.

Criticism of Work.

The judges at the various centres criticised the work done by the competitors, great importance was laid upon clean work in every section of the competition. The failure to make neat cuts, and the non-removal of dead wood, in many instances were the cause of competitors failing to gain the necessary points to gain a certificate in their respective classes.

In the Peach class the chief fault was that proper provision for refurnishing the fruiting wood was not made, by cutting a proportion of the annual fruiting wood back to the base buds, to cause these buds to develop into fruit wood during the coming summer. Some competitors had the proper idea in mind, but made the cuts too close, thereby removing the base buds.

The Pear trees presented a problem in most of the competitions, as this tree is allowed in most instances to grow more or less unpruned. The competitors in many instances were too hard in treating the fruiting wood, removing long lateral growths which had sub-divided and re-sub-divided, thus trimming the arms up to comparatively bare poles. The correct treatment was to have thinned out the wood where too dense, and then to have shortened in that which was retained. Some system should have been followed in trying to build in a frame-work in the trees, nothing definite was attempted in this direction by many of the pruners.

In the Currant and Gordo classes, the overcrowding of spurs and the lack of discretion in treating the fruiting wood, were points which were most noticeable. The judges contended that the weak spurs should have been reduced to one bud, whereas the strong spurs should have been left to two buds.

In the Sultana class the selection of water shoots as fruiting canes, the leaving of spurs too far out on extended secondary arms, the crossing of fruiting canes across the centre of the vines, twisting of too many canes together, and the over twisting and consequent breaking of canes, were the main faults.

South Australia

S. AUS. FRUITGROWERS' ASSN.

A meeting of the Executive of the South Australian Fruitgrowers' and Market Gardeners' Association was held on June 27th, the President, Mr. C. W. Giles, occupying the chair.

Mr. J. Donaldson reported that the Voluntary Apricot Jam Pool 1922-23 was wound up. A final dividend of 4½d. per case was paid to growers, making the total payment 3/4½ per case. The factories treated 12,000 cases. About 600 cases were sold on the market at 1/- to 2/- per case. Had it not been for the existence of the pool a large quantity of Apricots would would have gone to waste, as growers could not market them at 1/- per case, which would be the

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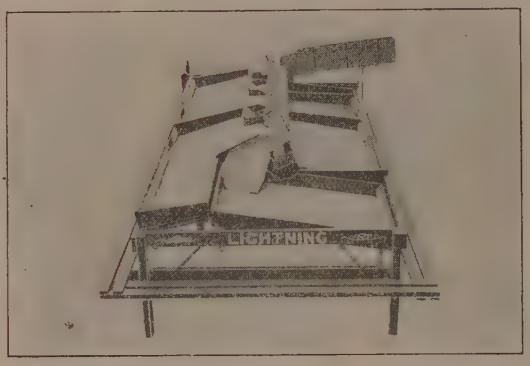

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approximate value had the 12,000 cases treated been thrown on the market.

A vote of thanks was accorded Mr. Donaldson for his successful management of the pool.

Messrs. J. B. Randell and H. Wicks reported on the recent Australian Conference of Fruitgrowers held at Hobart. Mr. Wicks gave details of his efforts in putting the motion through for an increase of duty on imported Lemons. He did not see any South Australian Lemons in Tasmania, but Italian Lemons were selling at from 1d. to 2d. each, while at the same time Lemons were practically unsaleable in South Australia. He considered that if our growers paid attention to picking, storing and curing they could put Lemons on the market equal in quality to the Italian. He had a fine sample of Lemons which were stored for 3½ months, and were equal to any imported. There was no secret in the curing, but the business could be done most efficiently through a packing shed, and if growers would move in this direction, they could make a good market in Australia for all their Lemons during the summer months.

Mr. Randell explained the method adopted in shipping Tasmanian spotted Apples. The results would have a serious effect on the Australian Apple trade in England next season.

Messrs. Donaldson and Randell reported on the Federal Fruit Council.

Mr. Donaldson considered the Federal Government would grant a pool next season on similar lines to last season for canned Peaches, Pears and Apricots. He advised growers to prepare in time for a voluntary pool for jam fruits.

The Chairman, Mr. Giles, reported having opened a branch at Clare with a membership of about fifty growers. Mr. E. Naughton, the General Secretary, reported that he put in 4½ days canvassing amongst the growers in the Clare and surrounding districts prior to the meeting. Forty-five growers had promised to join up, and others had come in since. Time did not permit to visit more than half the growers. Although the branch had only been formed a few weeks, steps were already taken to establish **a packing shed and a dehydrating plant.**

Embargo on Imported Apples.

The General Secretary reported that he had been advised by the Federal Government that they had no intention of removing the present embargo on imported Apples. Nevertheless, a request had been made to lift the embargo. He considered Apple growers were not alive to these interests, inasmuch as the protection duty was only equal to 2/6 per case or 25 per cent. on the market value, whereas secondary industries were protected up to 45 per cent. Shipments of foreign Apples might come in at any time, and it was not wise to leave protection matters to stand over until such happened. His experience was that the Federal Government was slow to move in matters when the primary producer asked for protection from foreign competition. The primary producer deserved a 50 per cent. protection, but they would never get it unless they pushed their claims in every manner possible. The Grape industry was the first to collapse, and other branches of the fruit industry were trending that way.

Blackwood.

Mr. Rodney Fowler, Manager of the State Experiment Orchard, Blackwood, South Australia, writes as follows:—"The season so far is very promising, although we have had some rather severe frosts. The rainfall is about normal, and conditions generally are much more pleasant for orchard work than last season. Almonds are well out in bloom (most of the varieties at least), and from our records, they are three weeks or more earlier than last season. Loquats have not bloomed at all, and the crop will be a total failure."

The Grape Growing Industry

Serious Position Faces the Growers.

Assistance from Federal Government is Sought.

THE SERIOUS POSITION which faced producers of fresh Grapes last season still exists: growers made earnest endeavours to secure certain adjustments relative to last season's crops, but were in the main unsuccessful. The problem is still acute, and growers are apprehensive as regards the coming season.

To give a review of the present position, the Acting Chairman of the Tariff Board (Mr. Geo. E. Hudson) has furnished the details as follows:

30th June, 1924.

Regarding the representations made by Grape growers, this matter was referred to the Tariff Board for consideration, in consequence of complaints made by the growers of Doradillo Grapes in Victoria and New South Wales that they would be unable to find a market for their crops, which were then becoming ready for gathering. The object of the representations of the growers was to find a means of inducing the buyers to give a reasonable price for the Grapes.

As the position appeared to call for serious consideration, the Board convened a conference composed of representatives of the Federal Viticultural Council from New South Wales, Victoria, and South Australia, and representatives of the Grape growers in Victoria and South Australia.

The representatives of the Federal Viticultural Council submitted the following proposals:—

(a) That the excise duty on brandy be reduced by 5/- per gallon.

(b) That a bonus of 4/- per gallon be granted on fortified wines exported, bonus to be based on wines containing 34 per cent. proof spirit.

(c) That a bonus of 1/- per gallon be granted on unfortified wines exported containing 26 per cent. proof spirit or less.

(d) That a drawback of 1/3 per gallon be allowed on fortified wines exported—this being claimed to be the amount of duty which the present duty on fortifying spirit imposes per gallon of fortified wine.

(e) That the present excise duty of 6/- per gallon on fortifying spirit be maintained, and 50 per cent. of the revenue thus obtained be devoted to the payment of the export bonuses mentioned above.

As an agreement on the immediate purpose of the Conference, viz., the fixing of a reasonable price for Grapes was not arrived at, the Acting Chairman of the Board suggested that a meeting of buyers and growers should be held with a view to getting some definite action on this point. The meeting passed a resolution strongly supporting the proposals (set out above) of the Federal Viticultural Council.

As it appeared that nothing further could be done in the way of getting an agreement as to the price to be paid the Board after reviewing the evidence that had been placed before it, decided to make the following recommendation which was submitted to the Minister on the 26th/3/24:—

Amend the excise tariff by adding the following additional items:—

(1) (AA) Brandy, distilled wholly from wine, the fermented juice of fresh Doradillo Grapes, by a pot still or similar process at a strength not exceeding 40 per cent. over proof, matured by storage in wood for a period of not less than two years, and certified by an officer to be pure brandy—per proof gallon, 21/- (present duty, 26/-).

(2) (JJ)(2) Spirit for fortifying Australian wine, distilled wholly from the fresh juice of Doradillo Grapes, subject to regulations, per proof gal., 5/- (present duty, 6/-).

(3) Provide for the payment of a bonus of 4/- per gallon on Australian fortified sweet wine exported containing not less than 34 per cent. proof spirit.

(4) Discontinue the drawback allowed at present on fortified wine exported.

Efforts were subsequently made by the Prime Minister, who saw representatives of both interests, to reach a definite agreement on the question of prices for Grapes, but no finality could be reached.

The Government decided to give further protection to the Australian brandy distiller by increasing the Customs tariff rate on imported brandy by 5/- per gallon, and the tariff was so amended on the 4th April last.

As regards the question of bounty on the export of fortified wine, the Prime Minister made the following statement in the House of Representatives:—

This proposition has been put forward by the Tariff Board. We cannot give effect to it, because we cannot get the assurances that we require. If the wine producing industry will stand up to the position with regard to the Grape crop, and give us an undertaking as to the future, we shall be able to help them in securing a footing in the British market. We must have an assurance as to the quantity of Grapes they will be able to take in the future, and the price to be paid to the growers.

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Commenting on the foregoing, the Secretary of the South Australian Fruitgrowers' and Market Gardeners' Association (Mr. E. Naughton) writes under date, July 12th, stating that the general position is unsatisfactory, and that definite proposals for relief are necessary.

DORADILLO GRAPE GROWERS.

Federal Government Offers Bounty.

The Prime Minister, Mr. Bruce, announced on July 23rd, the Government's offer to assist soldier settlers who have been placed on irrigated and other areas for the purpose of growing Doradillo Grapes for fortifying for vines.

Mr. Bruce stated that, following a conference of the Wine and Spirit Merchants, the duty on imported brandy had been increased. Even with that protective duty, however, the Grapes grown had only realised £3 a ton instead of £5 as was expected. The Federal Government now offered to share £1 for £1 with the States of New South Wales, South Australia and Victoria, the difference for the present year between the above prices.

The Prime Minister states that the offer operates as follows:—

For Grapes grown on irrigated areas.—If price per ton received by grower is £3 or less, rate of bounty to be £2 per ton. If price more than £3, but less than £5 per ton, rate of bounty to be difference between £5 per ton and price received by grower. No bounty where price received is £5 or over.

For Grapes grown on non-irrigated areas.—If price received by grower is £3 or less, bounty £1 per ton. If price more than £3, but less than £4, bounty to be difference between £4 and price received. No bounty where price is £4 per ton or over. No bounty to be payable on Doradillo Grapes grown by a vigneron who is also a distiller.

The Commonwealth Government is prepared to pay half of total cost of bounty.

Lining Paper for Fruit Cases.

Attention is directed to the fact that fruitgrowers and their organisations can now obtain commercial quantities of lining paper for fruit cases; (a) white newspaper cut to size in lots of from 1 cwt. upwards; (b) printed news consisting of Argus, Age, Leader, Australasian new, undistributed copies, and therefore perfectly clean, just as taken delivery of from the printing office.

The wholesale distributing agent to the fruit trade is Mr. Esmond Russell, 60 Queen Street, Melbourne, who has made special arrangements with Mr. C. N. Meyers, and who will quote and supply samples, particulars, &c., on application.

Mr. Meyers is the contractor who takes all unsold copies from the papers mentioned, and Mr. Russell guarantees prompt delivery.

Imperial Fruit Show.

Birmingham, 24th October to 1st November, 1924.

Opportunities for Australian Citrus Growers.

Entries Close at "Fruit World" Office on September 1st Next.

AUSTRALIAN CITRUS GROWERS are asked to note that the details which are now to hand relative to the Imperial Fruit Show, to be held at the Bingley Hall, Birmingham, England, from October 24th to November 1st next.

Entries will be accepted as follows:—

Class 4—7 boxes Navel Oranges.
5—7 „ Late Valencia Oranges.
6—7 „ Any other variety (including Grape fruit).

The 1st, 2nd and 3rd prizes are a gold, silver and bronze medal respectively.

One box in each class will be turned out by the judges, and such fruit will not be staged, but sold retail to the visiting public under Rule 26, which reads as follows:—

Rule 26.—All competitive exhibits of fruit (excepting those packages taken over as mentioned in the next paragraph) will be offered for sale by auction, and the proceeds of any such sale shall be remitted to the exhibitors, less 10 per cent., which will be deducted by the Committee for overhead expenses; but each exhibitor may place a reserve price on his exhibit provided that if such fruit remains unsold 10 per cent. of the reserve price shall be paid to the Committee. When fruit is packed in non-returnable packages these will be charged for—over and above price obtained for fruit—at rates fixed by the National Federation of Fruit and Potato Trades Association.

Judge's Score Card.

Points will be awarded as follows:

Packing.

Attractiveness and style, 5 points; fulness and evenness, 10; alignment and solidity, 10; wrapping, 5. Total, 30.

Fruit.

Size and shape, 15 points; colour and quality of peel and flesh, 15; uniformity of colour, size and shape, 15; condition—solidity, freedom from bruise and blemish, 15; edible quality, 10. Total, 100.

Edible quality is to be given full points in all classes except those in which the variety is not specified.

The citrus fruits must be packed under ordinary commercial conditions, but the color of any wrapping or packing paper used must be white. The top layer in all cases must be unwrapped.

The entrance fee in each class is £1.

According to the printed schedule entries close on September 5th at the office of the "Fruit World," 9 Queen-street, Melbourne, Vic.

Citrus associations, or competing growers are advised to lodge their entries before 1st September, and, of course, to make full arrangements for transport well before that date.

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Fruit Shipments
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AND HOBART, TASMANIA
Solicit Consignments
The High Standing and Long Experience of this Firm is a Guarantee that the Best Interests of Consignors will be conserved.

Apart from the entries of citrus the Imperial Fruit Show is a thoroughly comprehensive and representative one, there being classes for all kinds of fruit from all parts of the British Empire.

Schedules are available on application.

Queensland.

Cultural and Marketing Notes.

Pest Control : District News.

Marketing Bananas in Brisbane.

THE Committee of Direction of Fruit marketing has taken control of the marketing of Bananas in Brisbane as from July 1st. 1924. From this date all Bananas must be consigned to the Committee of Direction, who have appointed a salesman at a salary to take charge of the whole trade. In the past, four merchants have handled practically all the fruit. The marketing manager, (Mr. Ranger) was evidently of the opinion that the methods of these merchants in the past could be improved upon with a decided advantage to the growers.

Mr. Geo. Chester, of the municipal markets, has been appointed to sell the Bananas at a salary of £750/-/- a year. Mr. Chester has been handling about 50% of the Bananas during the last five years.

Arrangements have been made with the Commissioner of Railways to allow the use of part of the Goods Shed where the auction sales can be held. By this arrangement all Bananas will be sold on one floor instead of the four used previously.

Diseases and Pests in Citrus Areas.

Many growers have become alarmed at the enormous increase of diseases throughout the citrus growing areas of the Blackall Ranges, including Montville, Palmwoods, Mapleton and Buderim Mountain districts. Numbers of prominent growers are at a loss to know why the infestation of such diseases known as "Blackbrand," "Melanose," "Root Borer," "Limb Borer," and Scale Insects have become so prevalent during the present season.

The opinion is shared among many growers that the

neglected and deserted orchards

are the cause, whilst others declare that the new settlers are lacking in knowledge of methods used in dealing with the pests named. Already meetings have been held in various centres asking the Department to take immediate action to clean up the neglected areas.

An educational campaign should be started as new growers can not have too much educational matter placed before them, pointing out the correct method of controlling the various diseases affecting their plantations.

For the information of orchardists generally, the following methods used by successful growers who have made a study of the matter and are able to control the pests.

"Blackbrand."—This is most noticeable on the skin of the fruit, but also injures the leaves and young wood.

To deal with Blackbrand—A complete system of pruning is required, cutting out all diseased limbs and twigs; gather and burn all prunings as neglect in this respect no doubt aids the spread of diseases. In addition keep all pruning tools clean by dipping in a solution of formalin. Spray with Bordeaux Mixture and follow up with sprayings until a new and healthy growth appears.

For **winter application** the strength of the Bordeaux mixture should be as follows.—6lbs. bluestone, 4lbs. unslacked lime, 22 gallons of water.

For **summer application.** — 4lbs. bluestone, 4lbs. unslacked lime, 40 gallons of water.

"Melanose." — Bordeaux Mixture has been proved beyond doubt a cure for this disease. Thorough application however is necessary. the inefficient method of spraying has had a good deal to do with the spread of this disease.

"Root Borer."—Trees attacked by Root-borer are very easily noticed in the orchard. When a tree shows signs of general depression and no outward cause is apparent the roots should be examined. A white grub is usually found feeding on the roots tunneling along it eventually ringing the root.

If the roots are affected they should be cleaned up if the trouble is slight. Where the roots have been ringbarked and badly affected cut them off, painting the cut with Bordeaux paste, —the latter to prevent root fungus entering the tree.

The Director of Fruit Culture (Mr. A. H. Benson), in dealing with the root-borer matter recently at the Blackall Range, pointed out that this insect was not easy to deal with, and therefore required special treatment, which consists of:—first, placing substances round the parts of the trees liable to be attacked that will repel the beetles; and, secondly, by using substances that will destroy them.

For the former, several substances, such as newly-slacked lime, common salt, or a strong solution of Lime-Sulphur with or without arsenate of lead, have been found effective.

For the latter there is nothing better than Bisulphide of Carbon, which, when it is placed in the soil, gives off a very poisonous gas that will kill the beetles, and which will also enter the tunnels in the roots and destroy the grub.

Bisulphide of Carbon should be applied by making, with a crowbar, holes 9 inches to 1 foot in depth, about 1 foot from tree, 2 feet apart. Pour one tablespoonful or half a fluid ounce into each hole, and the fumes given off will penetrate the soil for a distance of a foot all round the hole. Beneficial results have been obtained by adopting this method.

"Scale Insects."

There is only one certain cure for scale insects, that is, **fumigation by hydro-cyanic acid gas,** but the cost of a plant is out of reach of many struggling growers. Several fruit-growing associations approached the Government last season, asking them to supply tents, etc., and a gang of competent men to systematically go from orchard to orchard fumigating trees at so much per tree, payable by the growers. This request has not so far been approved of by the Government; therefore, control of scale insects at present must be taken up energetically by the growers themselves by the proper and efficient spraying with an oil-wash, two sprayings of one in forty when the young scales are hatching will prove more effective than the use of other sprays when the insects are mature. The efficiency of application of sprays depend entirely with the grower.

Cooksley & Co.

(W. P. COOKSLEY)

Reliable Fruit Agents

22 Years' Experience

TRY THEM!

Fruit Exchange, Brisbane

QUEENSLAND.

Shipping No. 29

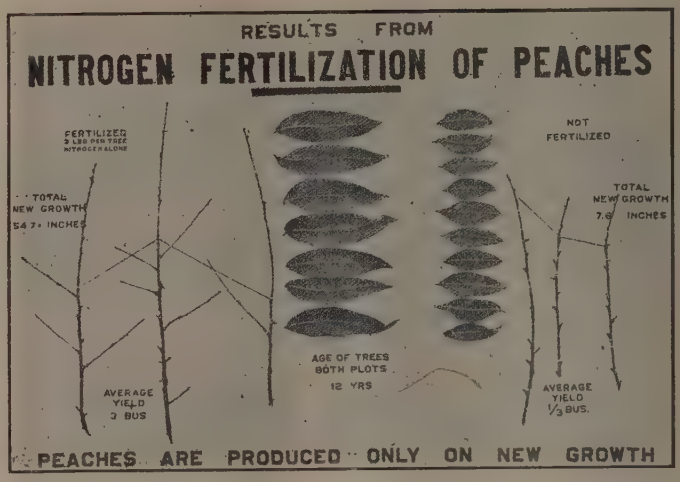
Reference: Commercial Banking Co. of Sydney Ltd.

Stanthorpe.

The Government Entomologist (Mr. Hubert Jarvis) stationed at Stanthorpe, reports that the Queensland Fruit Fly has been found harbouring in the scrub within a few miles of Stanthorpe. The growers are not alarmed at the finding, because they have been for several years trying to find out where the fly goes in the winter. The maggots of the fly were found in a native tree (Notelaea longifolia, var. Velutina), and also the same maggot was found in abundance at the foot of the tree an inch under the surface. The incubation of the maggots is being carried out at the University, also at the insectary under the control of the entomologists at Stanthorpe.

Pruning is now in full swing in the district, and many growers are busy reworking unsuitable varieties over to varieties of more commercial value. The reworking, especially in regard to Apples is needed very badly, some growers have as many as fifty different varieties of this fruit.

This Illustration will remind you of Nitrogenous Fertilisers.
Well,
SULPHATE of AMMONIA


RESULTS FROM
NITROGEN FERTILIZATION OF PEACHES
FERTILIZED 3 LBS PER TREE NITROGEN ALONE
NOT FERTILIZED
TOTAL NEW GROWTH 54 7+ INCHES
TOTAL NEW GROWTH 7.6 INCHES
AGE OF TREES BOTH PLOTS 12 YRS
AVERAGE YIELD 3 BUS
AVERAGE YIELD 1/3 BUS.
PEACHES ARE PRODUCED ONLY ON NEW GROWTH

is still the cheapest and best source of the supply of Nitrogen to all Orchard crops.

Write for Sulphate of Ammonia literature to—
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The Australian Gas Light Co., Haymarket, Sydney, N.S.W.; The Broken Hill Prop. Co. Ltd., Newcastle, N.S.W.; The North Shore Gas Co. Ltd., 193 Alfred Street, North Sydney, N.S.W.; The Metropolitan Gas Co., 196 Flinders Street, Melbourne, Vic.; South Australian Gas Co., Weymouth Street, Adelaide, S.A.

Woombye.

A very successful Show was held at Woombye on the 18th and 19th of June. The show was officially opened by His Excellency the Governor (Sir Mathew Nathan), who remarked that he was surprised to see such fine samples of Oranges, such as those exhibited by Mr. H. Roach, of Wyandra. He congratulated Miss Myrtle Greaves on winning the Orange packing competition against twenty other competitors.

The fruit section was easily the best citrus exhibition ever seen in Queensland. Ten pyramids of luscious Pineapples were arranged down the centre of the building, making a glorious display, which was cordially commended by visitors from the city.

The judges, Messrs. W. Rowlands and W. Suitter, of Brisbane, complimented the Society on such a fine exhibition of various fruits.

During the opening, His Excellency presented Mr. J. Wilson with a Scout Badge. Mr. Wilson is one of the oldest and most respected growers in the Woombye district, and has taken a keen interest in the co-operative movements for which the district is noted.

Nambour.

The Winter Show of the Nambour P.A.H. & I. Association is to be held at Nambour on July 31st. The schedule of prizes are much in advance of last year's, and a bumper entry is anticipated. One of the features will be the fruit packing competitions for fruitgrower's children over the age of fourteen. Forty entries have been received, and the competition promises to excel that of last year. These competitions are of great educational value, not only to the children competing, but to growers generally.

The "John Macdonald" Shield, won by the Mapleton School at the last Brisbane Royal Exhibition for the best average points gained for the citrus packing competition, will be presented to the headmaster (Mr. Watt) at the Nambour Show by Mr. J. Macdonald.

Bowen.

The Bowen district is experiencing one of the best seasons for many years, the rainfall has been all that could be desired by the farmers. Bowen is noted generally for its **Tomatoes** and **Cucumbers**, which are marketed during the months of June until October. Most of the crop finds its way to Sydney markets. At the time of writing prices are down to four to six shillings per quarter case, the cold weather at present being experienced in Sydney has made the market dull for Tomatoes.

Mr. W. Rowlands, the Government Fruit Marketing Instructor, has been in the district during the last two weeks demonstrating grading and packing of Tomatoes. Demonstrations were held at Mount Nutt. Hal Scotts, Bell's Gully and at Bootooloo. In addition, many individual growers were visited. It was pointed out by the instructor the necessity for proper grading and packing of Tomatoes. If growers sized into the four following sizes, the packing would be facilitated:—3 inch, 2¾ inch, 2½ inch, 2¼ inch. The 2½ inch and 2¾ inch could be marked "**Special**," the 3 inch and 2¼ inch could be marked "**Choice.**"

Mr. A. Wooller, the Government Inspector, reported to the Local Producers' Association that a good many immature Tomatoes were being sent away by several growers. He urged growers to be more careful in future, there was no doubt that the shipping of immature fruit has a bad effect on the market.

The monthly meeting of the Local Producers' Association was held on Saturday, July 6th. The most important item brought forward was sending of a trial shipment of Tomatoes by rail to Sydney. The Chairman (Mr. E. Moller) pointed out that now the railway service was established, the growers should give it a fair trial.

The fact that Bowen Tomatoes arrived in bulk on one day each week in Sydney, did not allow the agents to receive good prices. The market should be regulated, and this could be brought about by sending a train load each Monday, which would arrive in Sydney on Fridays.

It was unanimously decided to send a trial consignment to leave Bowen on Monday, July 21st.

The following is the quantity of fruit shipped from Bowen during the month ending June 30th:—

Tomatoes, 25,496 cases; Cucumbers, 613; Pineapples, 200; Chilli, 19; total, 26,328.

Banana Rust. — "Banana Rust," "Banana Scab," or Euthrips, has been declared a disease under the Diseases in Plants Act, and any Banana grower who removes, permits the removal of, sells, offers for sale, or otherwise disposes of any Banana plants, or portions thereof, that are infested with this disease, will render himself liable to prosecution, and will be proceeded against. Special regulations are being drafted to give effect to this decision.

Personal.

Mr. Salvator Scerri, Citrus Pruning Instructor to the Department of Agriculture, has decided to retire from public life, and is resigning from the Department. Mr. Scerri came from Malta during the war, and found his way to the Nambour district, where he was employed in the Moreton Sugar Mill. Whilst engaged there he demonstrated his skill as a pruner of citrus on the lines adopted in his homeland. Several growers, hearing of this, approached the then Minister of Agriculture (Mr. W. Lennon) to secure Mr. Scerri's services for the fruitgrowers, who acceded to the request. During his stay in Queensland, Mr. Scerri purchased a piece of land on top of Mount Tambourine, and it is there he intends making his home.

Machine to Clean Citrus Fruits.

Mr. R. L. Adams, of the Don Delta District, near Bowen, has invented a machine for the purpose of cleaning the Fumigine and scale insects from citrus fruits. The machine is made out of a red oil barrel, with a handle put through the centre, resting on two cleats at each end. A square hole is then cut in the barrel, into which three cases of Oranges are put, together with a quantity of damp sawdust, the barrel is then given not less than thirty-five turns; the lid is then opened and the fruit allowed to empty on to a slatted bench, which allows the sawdust to fall through into a catchment underneath. The fruit comes out quite clean and free from any marks. This is a much better method than the old system of brushing which leaves scratches and black marks on the fruit.

Don't WONDER what your crop will be!
MAKE SURE by using

"HARBAS"

THE SELF EMULSIFYING RED OIL.

Many Oils LOOK like
— "HARBAS" —
But DON'T ACT like it

Use "HARBAS" for
Red Spider and all Scale and Aphis Pests

Use also

"Harola" Lime Sulphur

The Best Fungicide on the Market.

RETAIL SELLING AGENTS FOR VICTORIA:

Geo. Bailey, Narre Warren.
Lawford's Fruit Exchange, Doncaster.
Law, Somner Pty. Ltd., Block Place, Melbourne.
F. R. Mellor, 440 Elizabeth Street, Melbourne.
Nyah Fruitgrowers' Co-op. Ltd., Nyah West.
Railway Packing Co. Pty. Ltd., Irymple.
Tresco Fruitgrowers' Co-op. Assoc. Ltd., Tresco.
S. J. Bevan, Avoca.
S. S. Gault, Somerville.
Tyabb & District Cool Stores, Tyabb.
Upper Beaconsfield Orchardists Pty. Ltd., Up. Beaconsfield.
D. D. Grant, Drouin.
F. Cave & Co., Western Market Buildings, Melbourne.

Wholesale Representative for Victoria—
ESMOND RUSSELL, 60 Queen Street, Melbourne.

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Advertisements under this heading, which cannot exceed one inch, will be classified as far as possible.

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Casual Advertisements, one or three months—9d. per line of six words. Nine lines to the inch.

Contract Advertisements, six or twelve month, 6d. per line of 6 words, 9 lines to the inch.

Send cash with order.

BOOKS.

PRUNING FRUIT TREES, By C. Quinn. Illustrated. 5/- posted—"Fruit World," 9 Queen Street, Melbourne, Vic.

FOR SALE.

A LIMITED quantity of our new late Raspberry (Exton's Late Prolific.) Fruit commence to ripen as other varieties are going out, thus extending the season.
For further particulars apply,
C. Exton and Son,
Kingiake, (Vic.)

ORCHARDISTS. TOBACCOLEAF FOR SPRAYING. Order while supplies are available. 56/- cwt. on rails, Melbourne.

BRUNNING,
64 Elizabeth Street, MELBOURNE.

The Proprietor of Australian Patent No. 1979, dated 28th May, 1921, for "METHOD OF AND MACHINE FOR APPLYING A COATING TO CANS" will dispose of the whole or part interest in the Patent or grant licenses on ROYALTY and invites tenders in respect of same in order to fulful the full requirements of the trade and the public. Address enquiries to PHILLIPS, ORMONDE, LE PLASTRIER & KELSON, Patent Attorneys and Consulting Engineers, 17 Queen Street, Melbourne, where drawings and specifications may be obtained.

REFRIGERATOR:

1½ ton Werner. Complete with Battery and Coils etc. in good order. Chance some Orchardist secure cheap Plant, owing alteration Cool Chambers rendering this Plant unnecessary.

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DONCASTER, VICTORIA.

WE BUY LEMONS

Green Citrons and Shaddocks, Seedling Oranges, Tomatoes, Cherries for crystallising, Loganberries, Raspberries and Strawberries, Passion Fruit.

C. M. BROOKE & SON,
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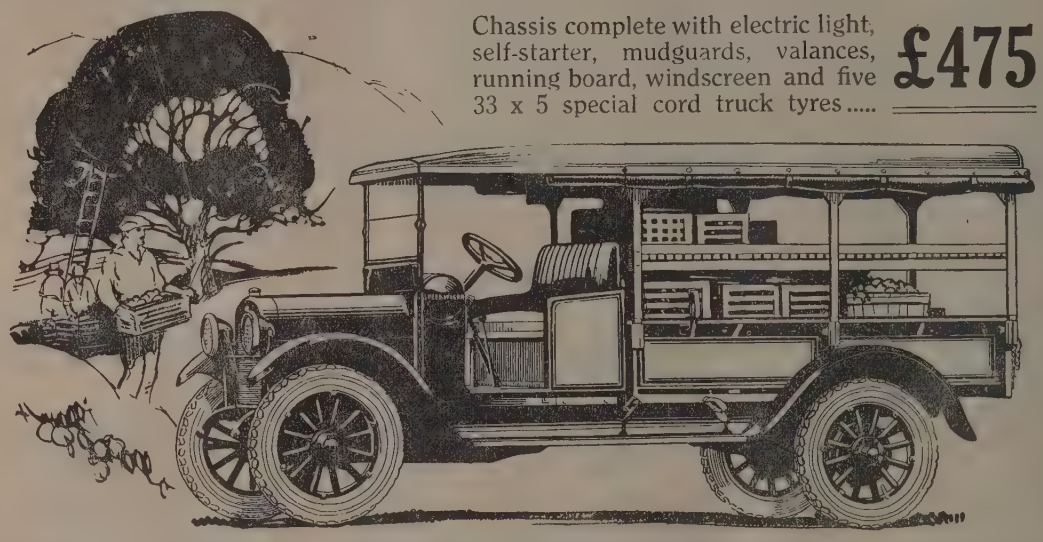
Bogus Beggar: "Will you give me a few coppers for a bed, sir?"

Miser: "Certainly. Where is the bed?"



Chassis complete with electric light, self-starter, mudguards, valances, running board, windscreen and five 33 x 5 special cord truck tyres..... **£475**

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The Fruitgrower's Rapid Transit System

FRUIT may spoil when transportation hesitates. Fleetness and get-there sureness are vitally necessary factors in the vehicle when any kind of perishable produce is the load.

Pneumatic tyres and proper balance give the Speed Wagon traction for the ploughed fields.

The famous Speed Wagon engine and spiral bevel gear axle give it fleetness which brings the market or cannery closer to home. Long springs and cord tyres keep road shocks from the easily spoiled load.

Certainty of performance, and endurance qualities for a quarter-million (or more) miles of service, are built in, because of:

—Inner frame anchoring of power units.
—Thirteen-plate clutch.
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—Vital parts 50% oversize.

The sum total is ECONOMY. On the basis of *lasting* economy *the Speed Wagon is the lowest priced commercial car in the world.*

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ASSOCIATION REPORTS.

VICTORIAN FRUITGROWERS' CENTRAL ASSOCIATION.

The monthly executive meeting of the Victorian Fruitgrowers' Central Association was held at Melbourne on the 15th. July.

There were present, Messrs J. W. Bailey (Chairman), J. Tully, C. W. Grant, A. F. Thiele, R. Mair, G. Mock, H. H. Hatfield, J. H. Lang, W. Carne, J. Thomas, W. J. Foster, W. E. James, W. Bunt, E. E. Meeking and B. Krone (Dept. of Agric.), F. H. Burbury, (Secretary).

Apologies were received from Messrs. V. R. McNab, J. M. Ward, and E. H. Wragg (Treasurer).

Fruit Bureau.—The East Wandin Association wrote requesting information as to the progress of the scheme for conducting a fruit bureau. Members of the committee appointed to go into the matter reported that apparently there was not sufficient interest to conduct the bureau. Only 44 growers had notified their willingness to join at the affiliation fee of 10/- per annum.

Arbitration Court.—The Secretary of the Rutherglen and District Vinegrowers Association, (Mr. J. C. Stanton) wrote stating that they desired rural industries to be exempted from the Arbitration Court, and placed under State jurisdiction, but that Mr. R. Cook M. H. R. had stated that he did not believe this would be done.

Mr. Stanton reported that a resolution had been forwarded to the Prime Minister pointing out that the Viticultural Industry was suffering because of awards under the Federal Arbitration and Conciliation Act, and that rural industries should be exempted from their operation, limiting the operations of the Federal award to such industries as shipping and shearing, and that if this were not possible at once, a referendum of the people should be taken with a view to ascertaining whether the people approved of the industrial powers of the Commonwealth being so restricted.

The Secretary, (Mr. Burbury) reported that this matter had been actively taken up by the Victorian Employers' Federation, and pressure was being brought on the Prime Minister in this connection.

Brisbane Show.—The following Associations agreed to send fruit:—Narre Warren, Burwood East, Doncaster, Pakenham Upper, Ringwood, Somerville, Tyabb, Harcourt Fruit Supply. The Dept. of Agriculture stated that Mr. B. Krone had been appointed to take charge.

Duty on Softwood Cases.—In answer to the Association's letter the Minister for Customs, (Mr. H. E. Pratten) stated that any proposed reduction in duty could only be made by Parliament.

Bounties on Fruit.—The Secretary of the Northern Victoria Fruitgrowers Association, (Mr. J. Rushton) wrote stating that his Association strongly disapproved of the fact that the "fruit bounties" committee, appointed at the Shepparton Conference, had not been called, and that Mr. W. J. Foster had been appointed to convene a meeting.

At the request of the chairman, Mr. Foster addressed the meeting, stating that meetings of growers had been held and bounty schemes formulated, which had been put before the Prime Minister. He was collecting definite information regarding the costs of production in Victoria, and was further conferring with growers of the Murrumbidgee Irrigation Area relative to their production costs. The request to the Prime Minister for bounties would be based on actual facts, and no assistance would be asked where any section of the industry was paying its way. The request so far made was for a bounty on production at the rate of 9d. per dozen 30oz. tins on Peaches, Apricots, Pears, and Pineapples, with an additional bounty of 1/3d. per doz. for export; 50 per cent of the crop to be exported if suitable, and prices to the consumer to be fixed on this basis, and that if later there were any increase in the selling price, 90 per cent of such increase should go to the grower.

With regard to the proposed bounty on Apple exports, the Dept. of Agriculture submitted an estimate of the cost of production; growers also stated their experiences. It was decided to submit details in writing to the President.

Orchard Registration.—Letters received from Associations were mostly in favor of the idea of an orchard registration fee. Some Associations suggested certain amendments.

It was decided to call a general meeting of delegates from affiliated associations, to be held at the Employers' Federation, Melbourne, on the 19th. August, at 10 a. m.

Fruit Packing Prizes.—The Education Dept. wrote stating that consideration was being given to the Association's request for an appropriation of £50/-/- per annum for a prize to be competed for by children of State Schools for the best packed case of fruit.

METROPOLITAN FRUITGROWERS' ASSOCIATION.

Fifth Annual Conference.

Orchard Registration Approved.

The fifth annual conference of the Metropolitan and Districts Fruitgrowers' Association was held at Box Hill, Vic., on July 22nd.

The President, Cr. J. Jordan, J.P., presided during the early stages of the meeting, Cr. J. Stevens occupying the chair later. Mr. W. Groves, M.L.A., was also in attendance. About 50 growers were present. Apologies were received from Messrs. W. H. Everard, M.L.A., and E. W. Greenwood, M.L.A.

The report of the Secretary (Mr. J. W. Aspinall) stated that the membership was 200. Ten open-air markets were being conducted, and 30,000 cases of fruit had there been sold this season. Thanks were expressed to Mr. W. H. Everard, M.L.A., for his assistance in securing the £100 grant from the Government on the £ for £ basis. The apathy of local growers was deplored.

In moving the adoption of the report, Mr. Tully spoke of the importance of open-air markets. Agents were necessary in the work of fruit distribution; he was not one to condemn the agents: but the closer producer and consumer could be brought together the better for all concerned.

Cr. J. Stevens, in seconding the motion, said that with better organisation, many more thousands of cases of fruit could be sold direct to the consumers. This did not mean cutting out the middlemen, who were necessary in the fruit trade: what was wanted was new avenues of trade, and these were being developed by the Metropolitan Fruitgrowers' Association.

Mr. W. Groves, M.L.A., congratulated growers on their enterprise. Dehydration was now an important factor in the fruit industry.

Latham Dehydrators

"STAND ALONE"

The "Rolls Royce" of the Artificial Drying World.

Some Installations for Foodstuffs.

Purchaser	Principal Prods.
Merbein Dehydration Trust, Mildura	Sultanas Raisins etc.
Tasmanian Dehydration Pty. Ltd. Bridgewater two plants.	Apricots Prunes Apples
Charles Martin, Yackandandah	Prunes
Swallow & Ariell Ltd. Port Melbourne.	Carrots Turnips Cabbages, etc.
Woorinen Co-op. Pack. Shed, Woorinen	Sultanas Raisins etc.
Aurora Pack. Co. Pty. Ltd., Irymple.	Sultanas Raisins etc.

D. J. LATHAM

157 Queen Street,

Melbourne, Australia.

When the subject of Orchard Registration was being considered. Mr. R. E. Boardman ("Fruit World"), at the request of the meeting, gave details of growers organisations in other parts of Australia and in New Zealand.

The Orchard Registration proposals were adopted, provided (1) that the maximum fee be 1/- per acre; (2) the bulk of the money raised to be spent in the districts which contributed same, and (3) that the administration of the funds be free of Government control.

Office-bearers were elected as follows:—**President,** Cr. J. Jordan; **Vice-President,** Mr. J. Tully; **Committee,** Messrs. J. Stevens. R. C. Fankhauser, A. Fankhauser, H. Clay and A. Lechte; **Secretary,** Mr. J. W. Aspinall.

During the meeting cordial references were made to the efficient work of the President (Cr. Jordan), and the Secretary (Mr. Aspinall).

MELBOURNE ROYAL SHOW.

September 18th to 27th.

Keen competition is anticipated at the Melbourne Royal Agricultural Show, for the Cool Stores Perpetual Challenge Shield for Apples and Pears ex cool stores. The display promises to be comprehensive and attractive. Exhibitors are reminded that entries close for all Fruit Exhibits on August 16th., at the office of the Royal Agricultural Society, 360 Collins St., Melbourne.

WITH OUR ADVERTISERS.

Sprays that Pay.—"Vallo" fruit sprays, which are manufactured by Messrs. A. Victor Leggo & Co., include Nicotine Sulphate, Arsenate of Lead (paste and powder form), Lime-Sulphur, Petroleum Emulsion, Atomised Sulphur, Benzole Emulsion, Bordeaux, and others. Much valuable spraying information is contained in the booklet issued by this firm.

Fertilisers.—All classes of fertilisers are supplied by the Cresco Fertilisers Ltd., who have offices at North Terrace, Adelaide, South Australia, and Corio Quay, North Geelong, Vic. Full particulars are obtainable on application.

Spraying.—The wholesale distributors of "Harbas" spraying oil and lime-sulphur advise that F. Cane & Co., Western Market, Melbourne, Vic., have been added to their list of retail selling agents for Victoria. Other agents are advertised elsewhere in this edition.

Spray Pumps.—Hand and power spray pumps, including the "Myer" spray gun, are supplied by Messrs. Welch Perrin & Co., of South Melbourne, Vic. This firm has made a close study of the orchardists' requirements in regard to spray pumps, and invites enquiries from growers.

Tractor Implements. — Tractor ploughs, discs and cultivators to suit every tractor, are supplied by Mr. D. Harvey, Box Hill, Victoria, who has made a special study of the orchardists' requirements in regard to implements. The many demonstrations which are given throughout Australia by Mr. Harvey, in conjunction with tractor supplies, are much appreciated by growers.

The "Bave-U" Sprayer.—For the past fourteen years, the "Bave-U" power spray pump has been giving good service on the orchard. A well-known grower states that in addition to spraying, he uses his pump engine for sawing wood, pumping, and other work. Much time and labour are saved thereby. Hand pumps are also supplied.

Transport.—Rapid transit of fruit and careful carriage which are so essential, are secured by means of a Reo speed waggon. Perfect balance and pneumatic tyres are two of the main features of this waggon.

Gravity Conveyors.—The "Rownson Gravity Conveyor," which is manufactured with all steel ball bearing rollers, save time and money when erected in the cool store or packing shed. Full particulars on application to the Sole Victorian Agent, Cyril H. Miller, 31 Queen-street, Melbourne.

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	Tons	Brisbane	Sydney	Melbourne	Adelaide	Fremantle
T.S.S. JERVIS BAY	13,850	9th Aug.	16th Aug.	20th Aug.	23rd Aug.	28th Aug.
,, LARGS BAY	13,850	30th Aug.	6th Sept.	10th Sept.	13th Sept.	18th Sept.
,, HOBSONS BAY	13,850	20th Sept.	27th Sept.	1st Oct.	4th Oct.	9th Oct.
,, ESPERANCE BAY	13,850	18th Oct.	25th Oct.	29th Oct.	1st Nov.	6th Nov.
,, MORETON BAY	13,850	15th Nov.	22nd Nov.	26th Nov.	29th Nov.	4th Dec.

Taking Wool, General and Frozen Cargo at Lowest Rates.

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AGENTS AT ALL OTHER AUSTRALIAN PORTS

Western Australia.

Pruning: Spraying: Cultural Hints.

(By Geo. W. Wickens.)

VALUABLE CULTURAL INFORMATION to fruitgrowers is contained in the following article by Mr. Geo. W. Wickens, Western Australian Government Fruit Expert, in the W.A. "Journal of Agriculture," as follows:—

Pruning.

With regard to pruning, there are nearly as many styles of pruning as there are operators, each exponent claiming some special benefit accruing from the procedure he follows.

It is certainly a fact that, provided soil and climatic conditions are suitable, fruit trees will produce crops of fruit under the most varied methods of training, and with little or no training at all, but there are certain fundamental principles underlying pruning which should be mastered by the beginner, and having grasped these and acquired the habit of

closely observing results

from year to year, he will find he is able to train his trees satisfactorily, and obtain good crops even though his style differs somewhat from orthodox methods.

One piece of advice I would like to give here is that every grower should have a **settled system** and follow it. I do not, of course, mean that he should perform all the work himself; that would be impossible in some of the large orchards, but he should be able to tell his men how he wishes the trees to be pruned, and see that they are done in that way, for although, as stated above, there are many styles giving good results, sudden variations from year to year, when different pruners with divergent views, carry on the work, are decidedly hard for the trees, and costly to the owner.

There are many who have embarked in the industry during the last few years, with little or no knowledge of the habits of the trees, from which they hope to derive a livelihood, and I would strongly advise these to get in touch with the Orchard Inspector who supervises their particular district, and request him to give a practical demonstration on their own trees, illustrating the best way to prune them.

The inspectors have had long experience in this work, and know the habits of the trees under the conditions obtaining in the various fruitgrowing portions of the State, and a beginner will learn more in a couple of hours from seeing the work done and having an explanation of why it is done, than he will from a week's study of a text-book. As he gains in experience he will find that a good text-book is a very valuable aid, but the complete novice finds it hard to recognise, from the description given on the printed page, the various buds and growths on the actual trees.

Orange growers will be busy this month with export, but they must find time to pay special attention to the Fruit Fly traps advised to be used in the June issue of "The Fruit World" (page 270).

Notes for August.

Pruning and planting deciduous trees and vines should be completed by the end of this month, and wherever the soil is dry enough, spring ploughing should be in full swing.

The second winter spraying for San Jose scale should be completed before the 31st of August on all trees where the buds are forward. Late blooming kinds, like Rome Beauty and Five Crown Apples, may be left until the middle or end of September.

Where old Apple and Pear trees require working over to other varieties, the necessary scions should be secured early in this month from trees thoroughly dormant, and buried in soil in a cool place to retard bursting of the buds.

Vine Spraying.

Sultanas, Waltham Cross, Red Malaga, Ohanez and other varieties of vines subject to attack by Anthracnose, should be treated with very strong Bordeaux Mixture, 20 lbs. lime, 20 lbs. bluestone, 40 gallons water, just when the buds are nearly ready to burst; this treatment to be

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followed up in severe cases by a second spraying, at half that strength, about three weeks later; and a third at the ordinary strength of 6 lbs. bluestone, 4 lbs. lime, 40 gallons water, about a fortnight after the second. The need for the second and third sprayings depends upon the severity of the diseases, and the weather conditions. If the spring sets in dry, the third spraying will not be required, and perhaps not even the second.

Until the last few years, the treatment recommended was swabbing with sulphuric acid, diluted with water, or sulphate of iron wash, but such success has been met with in the Swan vineyards with heavy dressings of Bordeaux Mixture that swabbing even in very bad cases is now rarely resorted to.

The weather will probably be still too unsettled to change from traps to

baiting for Fruit Fly

in Orange groves, so the work of renewing the pollard mixture, and carefully and regularly freeing the traps from leaves and other debris must be continued.

Orange aphis will appear about the end of this month, and where the insects are sufficiently numerous to damage the young shoots, they should be sprayed with Black Leaf 40 and soap, using 1 lb. Black Leaf 40 and 3 lbs. soap in 80 gallons of water.

Be prepared to give the first spring ploughing early in September.

Be ready with sprays for spring sprayings of Bordeaux Mixture, 6:4:50, during the pinking stage of blossoms.

Mount Barker.

The Mount Barker Fruitgrowers' Cool Storage Co-operative Society Limited ended its fifth year on the 31st. January last, and the balance sheet shows it to be one of the most successful Co-operative Companies in Western Australia.

The object originally was to build a Cool Store; thus capital to the extent of £2,500/-/- was subscribed by the growers, which, together with the assistance of the Bank, buildings to the amount of £14,000/-/- were erected.. Last year an extra call was made, bringing the total paid up capital to £3,054/-/-, but the net profit for the last twelve months working was £3,051/-/-. In five years the shareholders have received 37½% in cash dividends, £2,000/-/- in bonuses, and £1,000/-/- in reserve, which represents nearly £1,000/-/- more than they paid into the concern.

The position also with regard to the buildings is most satisfactory, as each year 5% has been written off until last year when 12½% was written off the plant. The total amount written off during the five years is £3,598/-/-, although the building and plant would cost considerably more to erect now, than they did at the time the store was built.

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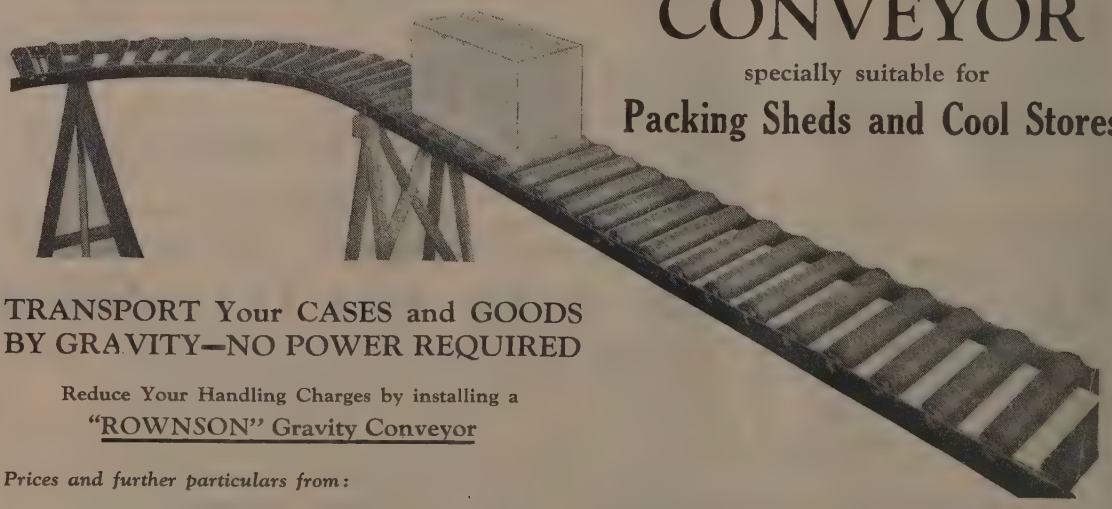

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POTASH PRICES.

To his regret the fruitgrower knows that practically everything he uses in producing his crop costs more than it did in 1914. So that it is refreshing to be able to record that one commodity, at least, is actually cheaper to-day than it was before the first gun boomed in France. Potash is the cheerful exception to the depressing rule.

Muriate of Potash is now retailed in Victoria at £12 per ton, and Sulphate of Potash is obtainable at £15 per ton, both prices being below those ruling immediately before the outbreak of hostilities.

The explanation of this phenomenon is to be found principally in the fact that prior to the restoration to France of Alsace and Lorraine, Germany enjoyed what amounted to a world's monopoly in the supply of potash, and adopted the policy of keeping the price level of the salts lower for home consumption than for foreign export. That the competition of the French mines in Alsace is a wholesome factor from the point of view of the overseas buyer, is proved by an extract from the monthly report (March, 1924) of the Prussian Chambers of Commerce. Dealing with "Potash Business" the report remarks, "There were also only few foreign sales. Prices were not all that could have been desired in view of the Alsatian competition."

Fostered doubtless by these lower prices, the world's consumption of potash is growing steadily—although, of course, during individual months, shipments may be momentarily restricted.

Muriate is distinctly cheaper than Sulphate, and it is interesting to note that vastly more of the former than of the latter is used in Europe and America.

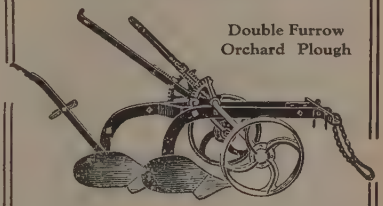
According to German statistics, for instance, in 1919 the quantity of both salts made available for home consumption (i.e., use in Germany), amounted, roughly calculated into English tons of the concentrated salts) to:—

Muriate of Potash .. 425,000 tons
Sulphate of Potash .. 20,000 „

It is difficult, if not impossible, to forecast the future trend of Potash prices. Bound up, as the problem is to some extent, by the conversion tangle, he would be a bold man who would venture to say whether the present prices will be maintained or will be raised in sympathy with happier conditions in Central Europe. What does seem reasonably certain, however, is that, no further reduction in values can well be hoped for, when it is remembered that it probably costs £3 per ton more to-day than it did in 1914 to deliver potash from the European sources of supply to rail in Melbourne—when modern labor cost, sea freights, wharfage, etc., are taken into account.

A kind thought—may the dial of thy life mark only the sunny hours.

"NEWLIGHT"



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BEFORE PURCHASING send for Lasscock's Catalogue and prices. These South Australian grown trees are unsurpassed for hardiness, healthiness, and vigor. They will jump from the start and bring profit to the grower. Our stocks are excellent and prices right. Special attention is given to packing.

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Practical Orchard Notes.

Ploughing, Pruning, Spraying.

Mr. H. H. Hatfield, a successful fruitgrower of Box Hill, Victoria, gives the result of his experience as follows.—

By the time winter sets in, say June 1st., all ploughing should be done. After that the first work should be to see that all drains are kept open, allowing a clear way for all water to run off, as it is a bad practice to have water lying, for it soaks down and does harm to fibrous roots.

When this is done, pruning commences. I mostly grow Apples and Pears, so **pruning with me goes on to the end of August,** of course doing any odd jobs at the same time.

Then I see to **spraying to destroy Scale or Red Spider.** With a good magnifying glass, one can see when the scale begins to lift, and when the Red Spider begins to swell in size. You can lift the scale with the point of a knife, and if the scale opens easily, showing that the eggs are swelling and so will soon make a space for the oil or Lime Sulphur to get under, that is the time to spray.

Red Spiders are darker in dormant state, and show a brightish red as they begin to throw off this winter covering. A nice warm day in early September, I believe is the best to spray for both scale and Red Spider. Do not spray on a cold day unless you use spray 50% stronger.

I prefer oil spray to Lime Sulphur, for Scale and Red Spider.

Strong Lime Sulphur in my opinion does harm to trees—I may be wrong, but that is my experience. The strength I use of the prepared Red oils is 1 in 20.

Pruning Jonathans.

You start with a straight stock. Cut it off about knee high; this should be worked to make it force out say 4 shoots. Watch these shoots and get them to grow as strong as possible the same distance apart. Second year cut these 4 shoots back to about 6 inches, and try to get them to send out 3 shoots each, then you have 12 leading shoots on main timber to form your tree. You may have 11 shoots or you may have 14. In some cases the 11 will be enough, and the 14 not too many; the strength of the tree will decide.

Now if your tree is well grown, you can let these 11, 12, or 14 limbs run. At the same time feed the tree well to make it throw out as many laterals as possible. You thus have a tree full of laterals, say from 18ins. to 2 feet.

Leave just those that droop or come straight out from the branch, and have most developed buds on them, and cut out those that are most upright and have a lot of latent buds; be sure they do not cross or point to one another.

Next year these laterals should be full of fruit buds.

Now you must use good judgment—some laterals you can cut back to about 6 inches, others you can leave 18 inches according to strength of tree etc. This pruning will do for Jonathans, Cleos, and Romes.

The Romes may want other attention that could be best shown by a good pruner, but is hard to explain on paper. Do not leave any Rome laterals more than 2 ft., but it would be as well to just break off say 2 inches off the tips.

In this case I like to have the tips bruised so as to retard sap to force out backward fruit buds.

For Stone Pippins, Sturmers, and Five Crowns, the same pruning at first, but as soon as you have your right number of main branches, the laterals should be thinned out as before, and cut back to 4 or 6 inches.

Jonathans and Cleos, 12 or 16 years old, should be well fed to make them send out fresh laterals, so as to allow some of the others to be cut off every year.

It takes a courage to stand up for one's opinion when loud voices are shouting to the contrary. Yet it usually happens that the quiet, considered opinion of the thoughtful man proves out in the long run to be correct.

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SOME COMMON ORCHARD TROUBLES.

By W. J. Allen N. S. W.

Moss and Lichens are very often found on fruit trees, and they are no doubt decidedly injurious. All efforts should be made to assist the trees in maintaining a clean, healthy bark. This can be done by a regular application in the winter of lime-sulphur solution, states Mr. W. J. Allen, N. S. W. Government Fruit Expert, in his Bulletin on "Spraying."

Gumming.—This condition found in trees may be caused in many ways—unsuitable conditions, excess of water in the soil, drought, frost, unsuitable stocks etc.

Peaches and Cherries, when attacked badly with **San Jose scale,** show a good many gum spots throughout their limbs. In certain soils and districts, pruning Cherries during the winter months will cause gumming in some varieties. Whenever a tree shows an excessive amount of gum on the limbs, it is recommended to remove it by cutting away the affected parts and painting with ordinary white lead.

Die-back.—The dying-back of twigs and branches very often occurs without any apparent cause for same. Defective drainage and droughty conditions of the soil have been found in some instances to bring about this condition.

Cankers.—These arise from various causes, and are often not amenable to treatment by spraying.

Prunings.—All prunings should be burned to assist in the destruction of scale insects and other pests and diseases.

Swingle-tree Disease.—This trouble is far too common. In most cases it is due to careless driving while ploughing or cultivating. Harness which does away with hames and swingle-trees is to be recommended.

Wounds.—It is very necessary to be sure to smooth off all wounds caused by the pruning saw where branches are cut away, or by branches being broken off. To prevent the entry of decay through such wounds they should be heavily coated with a thick oil paint.

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Canby, Oregon, (U. S. A.) 9/6/24.

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Tasmanian and Victorian Shipping Number 173

Poultry Notes.

BREEDING.

By Ian P. Hamilton.

SUCCESS in chicken rearing depends not so much upon the number of birds that reach the adult stage, as upon the quality of them. Don't waste feed and time in rearing to maturity stunted, deformed or physically weak chicks.

If the young pullets are intended for the production of eggs, only those which have made steady growth right from chickenhood should be retained, for any that are stunted, though they may be the progeny of pedigreed laying stock, will turn out profitless.

However good parent stock may be, there will always be a few weeds reared where large numbers are concerned, and if these—however few—are allowed to remain unculled, their seed will have a disastrous effect upon the future generations. It is only by a rigid system of culling from the young stock, that a high standard of excellence can be maintained in the flock.

The wise breeder who weeds out and kills his inferior stock before it reaches the breeding pen, not only benefits himself, but others who might later introduce stock from his pens.

A few straight-boned, well developed birds that have been kept free of sickness, and reared under the best conditions, will form a better foundation for future operations than a host of youngsters showing stunted growth or bearing physical defects.

A few serious, though sometimes common defects amongst chicks which should be guarded against and eradicated by culling are, leg weakness, stunted growth, roach back, wry-tail, twisted neck, crooked toes, feather disease, crooked breast, and general debility.

Birds so affected should not be given room in the poultry yard.

From a financial standpoint, the rearing of weak or deformed chickens is unsound, as it means a waste of good food, and this is too costly an item—especially in these days—for the dieting of anything but the most promising stock.

It is only by annually weeding out physically defective and surplus young stock that a healthy strain of fowls can be established.

DAY OLD CHICKS

Blk. Orp., White Leghorn, £6/6/- per 100
£3/10/- per 50
18/- per doz.

Good Laying Strain. Order at once.
Delivered anywhere by rail.

R. STEPHENS
Goodwin Poultry Farm
We Pay Freight. BLACKBURN, Vic.

REMINDERS FOR AUGUST.

Keep the chickens growing.

Provide plenty of green stuff.

Force your early hatched cockerels, and catch late November markets. It will pay you.

Feeding Advice.—If you want feathers, feed heavily. If you want flesh,—feed widely,—but if you want eggs always feed a balanced ration.

If eggs are dirty, it is your fault. They are clean when the hen lays them.

Wet brooder floors means leg-weak and cramped chicks. Hard balls often form under their toes and cause lameness.

When chicks can fly over two-feet wire netting they can generally look after themselves provided they are fed regularly.

It is better to mix the wet mash with warm water than with cold, as the latter is more likely to cause diarrhoea. If warm milk or meat soup is obtainable, that is better still.

Bee-Keeping.

Dead Brood and Its Causes.

NOT ONLY DISEASE, but certain abnormal conditions, may cause the death of brood. Brood may be effected by being (1) chilled, (2) starved, and (3) overheated, says a pamphlet on the subject issued by the N.S.W. Dept. of Agriculture.

If bees desert a hive where brood is present, such brood will certainly chill; and in other cases where intense brood-raising goes on in spring, a cold snap by compelling the bees to make a more compact cluster, and thereby to leave a portion of the brood exposed, may cause some of the brood to chill.

Apiarists sometimes fail to make a sufficiently careful diagnosis of a suspicious condition, sometimes with the disastrous effect that American foul brood is classed merely as chilled brood. Yet the features that distinguish these two conditions are sufficiently plain to enable any reasonably observant person to arrive at a correct conclusion.

Following are some points of difference.—

(1) In chilled brood the dead immature bees are in a compact sphere. In American foul brood the diseased larvae are rarely, if ever, found in a compact sphere.

(2) In chilled brood the dead inmates of the cells are usually in the pupal stage. In American foul brood the majority are in the larval stage.

(3) In chilled brood the dead inmates can be removed easily from the cells, and the contents are watery. In American foul brood it is not easy to remove the diseased remains, and the contents are ropy.

(4) In chilled brood the colour of the diseased remains is dark grey. In American foul brood it is coffee-brown.

(5) Any fairly vigorous colony will quickly clean up chilled brood. American foul brood cannot be cleaned up by the bees.

There is no treatment for chilled brood; the bees will clean the matter up and free the colony of the dead brood; but where bees desert a hive, leaving brood to chill, it is advisable—if there is any quantity of dead brood—to melt up the combs.

Where brood dies from starvation, the dead larvae are quickly removed from the cells by the bees. It may

DON'T KEEP FOWLS, MAKE THEM KEEP YOU!

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White Leghorns, Black Orpingtons, Rhode Island Reds.

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GRANDVIEW POULTRY FARM
Cranbourne Road,
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Magic of "Karswood"

Karswood bird lays 400 Eggs — then killed for post mortem examination — see Mr. Will Hooley's report below —

The report of this post mortem examination is of tremendous interest to every poultry keeper in Australia: it proves conclusively that every hen has in her body the "seeds" of an uncountable number of eggs, in varying stages of development. As each egg seed near the bottom of the egg-cluster attains maturity and falls into the oviduct, other yolks, less completely developed appear and take its place. Under proper treatment this process is unending and continuous. It should be taking place in the internal organs of your own hens at this very minute.

Notice the qualifying remark though about **proper treatment.** This is very important; it is up to you as a Poultry Keeper to so treat your bird that it will continue, with almost clock-work regularity to develop its yolks and give off one daily as a complete egg.

On the other hand, by wrong feeding, lack of attention or the administration of false stimulants the opposite effect will be produced—and the little yolks, instead of developing in the right way will be retarded, and will ultimately shrivel up and disappear.

The Only Safe Way.

For some years now we have recommended the one way to produce eggs in abundance—the one safe, sure and simple way to enable your birds to develop their egg yolks steadily, daily and persistently. That way, as more than half a million poultry keepers know to their profit, is the giving in the wet or dry mash one tablespoonful of Karswood (harmless) Poultry Spice to every twenty birds. Karswood (harmless) Spice gives the laying organs of the fowls the gentle stimulant they require. It keeps the egg yolks moving—developing—growing. It acts naturally, not in a forcing way—but coaxingly; and it adds tone to the health of the birds so that they simply cannot help laying. They must lay.

Proof of Harmlessness.

Mr. A. Hickton, of 49 Station St., Mansfield, Woodhouse, Notts, was persuaded by us, much against his will, to submit one of his birds to a post mortem examination. The bird, along with many others kept by Mr. Hickton, had had Karswood (harmless) Spice every day for two consecutive years, and it had laid no fewer than 400 eggs in the period. Mr. Hickton did not like to part with it, but he was sufficiently interested in the intended test that he killed the bird himself and sent it to Mr. Will Hooley for strict post mortem examination.

Mr. Hooley is the chief expert of the London "Poultry World," and is known throughout the international poultry kingdom.

The following is Mr. Hooley's report:—

"The Firs," Hartley,

Longfield, Kent.

To A. Hickton, Esq., 49 Station St., Mansfield Woodhouse. Dear Sir,—I have examined the Buff Rock which you had killed for the purpose of post mortem examination. The conditions of the internal organs were as follows:—The liver was a perfectly good color, sound and not increased beyond the normal. The kidneys were in perfect condition, and the heart and lungs as natural as they could be. The bird was deep in the moult, and when in this condition, one expects to find the ovary remarkably small; the ovary of the bird sent had a wonderful number of oocytes, the structures that will become eggs.

This bears out the statement that each fowl is born with an uncommon number of—shall we say "egg seeds," and it depends on the skill of the poultry keeper to get her to ripen them. It is, of course, the substances given to the bird that promote the ripening of the oocytes or "egg seeds."

I note that the bird has been given Karswood Spice for two years. In knowing this, and having visible evidence of the great number of oocytes in process of development, one naturallv concludes that the Karswood Spice must greatly assist the development of the eggs, and evidently does so, without engendering diseases of any of the internal organs of the bird.—Yours faithfully, Will Hooley.

A Bold Statement.

Ordinary poultry spice would have greatly increased the size of the liver, rendered it a very bad color; would have injured the kidneys and the heart, and would have produced, long before two years, a fowl fit only for the boiling pot.

You will observe that the bird was "deep in the moult," and as Mr. Hooley says, "when in this condition, one expects to find the ovary remarkably small," but the ovary of this particular bird, although deep in the moult, had a wonderful number of egg yolks ready to be converted into eggs—proving that Karswood (harmless) Spice keeps the internal organs of the fowl in tip-top condition, even when Nature decrees a change of feathers. In other words, Karswood is at work slowly, silently, persistently, day after day, toning up the system and increasing the vitality of the ovaries, by giving the system of the fowl just those ingredients it requires to enable it to convert its food into eggs.

Note the Economy

1/- packet supplies 20 hens 16 days.
2/- packet supplies 20 hens 32 days.
13/- tin (7lb.) supplies 140 hens 32 days.
14lb. tins, 25/-. 28lb. tins, 48/-.

"MAKES 12 HENS LAY FOR A HA'PENNY A DAY."

Make the Test.

Go to your local Grocer, Storekeeper or Produce Dealer. Get a 1/- packet of Karswood (Harmless) Poultry Spice. Test it for a fortnight, or three weeks on half a dozen hens. Do not expect an immediate avalanche of eggs. Karswood works naturally, not suddenly. Within the time specified, you will notice a decided improvement in the health, virility and productiveness of those birds.

Agents for Victoria and Tasmania:

Henry Berry & Co. Pty. Ltd.,

Collins Street, Melbourne.

be noticed, too, that where a colony is suffering from lack of food, the bees will uncap some of the scaled brood. Some of the immature bees may be seen in progress of being removed. Their colour will be healthy white, and they will be free from any symptom of disease.

Overheated brood is usually caused by insufficient ventilation during very hot weather, special attention should therefore be given to ventilation during the removal of bees.

Careful note of the symptoms of chilled brood and a knowledge as to whether the colony has suffered from lack of ventilation, will serve as guides for the bee-keeper. There is no treatment for overheated brood.

EMBARGO RELAXED.

Some time ago the New Zealand authorities placed an embargo against the importation of bees from Australia owing to the belief that the Isle of Wight disease existed in the Commonwealth. The embargo has been eased to the extent that bees now may be permitted to enter the Dominion with the consent of the Minister of Agriculture. A beekeepers' conference has considered an outline of the proposals for framing a honey export control bill, and decided to forward it to the Minister of Agriculture and urge him to have a bill prepared and presented during the coming session.

Keep your face always toward the sunshine, and the shadows will fall behind you.

Write your name with love, mercy and kindness on the hearts of those about you, and you will never be forgotten.

Pig Rearing.

The Brood Sow.

GOOD FEEDING is one of the essentials of successful brood sow management. In addition, however, there are other considerations that should be emphasised. Supply sufficient water, self-watering being preferable.

Furnish suitable shelter which provides warmth, dryness, ventilation, shade and sunlight, as well as quietness. Avoid damp floors and slippery cold pens. Get the sows out into the sunlight, especially in the winter when not too cold, as it is invigorating.

Sunshine at farrowing time is better than medicine, as direct rays from the sun is essential to robust health. See that the sow is kept free of ver-

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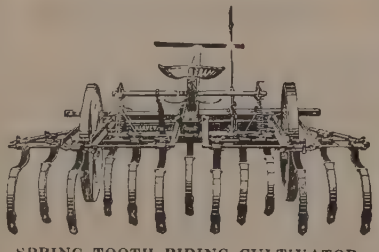

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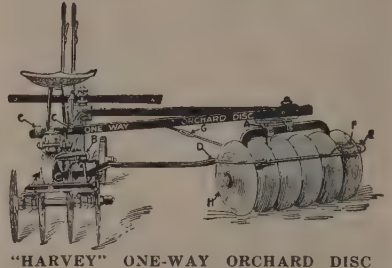

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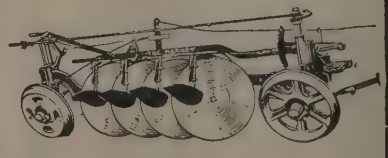

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min and worms, and do not over-fatten. Handle her gently and encourage exercise by the provision of the means and the stimulus. Promote laxativeness by good feeding and management.

Don't force the sow to exercise in a cold open yard in very cold weather. She is liable to get a chill. Do not overcrowd, and provide proper sanitation.

If on an open run the sow should be brought into the sty about a fortnight before farrowing.

While carrying pigs she should be fed on skim milk, scalded bran, scalded crushed barley and pollard. The milk for the young pigs is fed warm to the young pigs for a month after weaning, and the change from suckling the mother to the ordinary skim milk is not then so severe on them.

Jottings.

When a pig is seen to walk sideways, fall over and seems to be always shaking, it is usually a sign of tuberculosis of the spine. The pig should be killed and only if the carcase is found free from tuberculosis should it be used for food.

Growing pigs require a full ration of milk and plenty of grain and pollard, otherwise they become stunted and liable to all sorts of complaints.

It is very hard to rear very young pigs (whose mother has died after farrowing), upon cows milk, as they are unable to digest it.

Very small quantities of fresh milk at frequent intervals are necessary, and a little lime water added to the milk is beneficial.

TO DISPOSE OF PRUNINGS.

A Cheaply-made Orchard Burner.

Easily the best way of disposing of prunings is by means of the orchard burner. The advantages of the burner are many. Its use is quicker, and therefore cheaper, than the carting away of the prunings, and it is better for the land than the drawing of a loaded cart through the orchard. The prunings are destroyed by fire on the spot, together with any missed fruit, and should they be affected with any insect pest or fungus disease, the danger of spreading this to any other part of the orchard is lessened. In districts where heavy frosts occur, pruning for the first hour or so after sunrise is very painful for the hands, and it is almost impossible to keep one's mind solely on the job, and to do good and quick work, whereas the time might be very profitably used in burning off the previous day's prunings.

An effective burner can be made very cheaply by placing a square iron tank (one discarded as useless for holding water will do) on an iron framework and wheels (states the N.S.W. Department of Agriculture). The framework is simple, and can be made by any blacksmith, or even by a handy man; the iron wheels can generally be obtained from a blacksmith or foundry scrap heap. The bottom of the tank should be freely pierced with 1-inch or 1½-inch holes, to allow for sufficient draught to make a quick-consuming fire.

A BOOK ON PRUNING.

A new edition on "Pruning"—a revised, enlarged, and more substantially bound form of this popular publication of the New South Wales Department of Agriculture—is now on sale. The eighth edition makes its appearance at an opportune time, and should soon be in demand. Comprising over 200 pages of copiously illustrated matter, it deals with its subject exhaustively, and conveys its teachings in the most simple and direct manner. Few of the Department's handbooks on farming subjects are better established in public favour

Another departmental publication of interest to orchardists is Farmers' Bulletin, No. 72, "Spraying." This also has been revised and enlarged.

Blessed be the man who thinks and talks with facts! He is needed in the world to-day, where more time is being wasted and more money spent by doing things wrongly than by doing them at all. To the man with facts life offers greater resources, greater responsibilities, and more satisfying achievements than at any period in history.—From "Electrical World."

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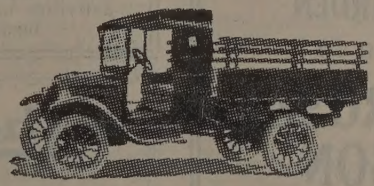

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Dehydrated Fruit and Vegetables.—We acknowledge having received from Mr. A. F. Spawn, Horsham (Vic.), samples of dehydrated fruits and vegetables. The fruits include Apples, Prunes, Peaches, etc., and the vegetables include dried Onions, Carrots, Potatoes, Pumpkin, etc.

All these products are of good commercial quality. The Apples, which are stated were dried without the use of sulphur, turned out white without discoloration, and on being soaked and cooked, came back to practically their original size and flavour.

Men are needed these days—red blooded, virile men—with knowledge, experience and winsome personalities to guide Australia to her destiny. Self-sacrifice, not self-seeking, should be the impulse. The tendency too often is to play upon the prejudices or ignorance of others to gain some position of advantage.

Let us face facts and with determination, a wide vision, faith, and good humour go about our daily tasks. Thus only will the work of the world be done.

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References—London Bank, Swanston St., Melbourne.

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SAVE MONEY!—high wages now ruling.

SOUTH AUSTRALIAN GROWERS, Read this:—

"In regard to the ELLIS GRADER which I used in my orchard last season, I am well satisfied with it. Its simplicity in working and grading proves itself a GREAT TIME and MONEY SAVER. I have had no trouble whatever in bruised fruit, and in fact have Apples in cool store at the present time showing no signs of being bruised. I firmly believe that with graded fruit an orchardist secures better prices, as the buyers give preference to graded fruit, which means that they are top of the prices ruling. The appearance of the fruit when packed for market is much superior to that graded by hand. My neighbour has seen the machine, and has borrowed it to finish the last of his Apples."

M. V. MAUGHAN, Orchardist, Houghton, S.A.

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The Fruit Trade

Market Reports and News Items.

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Louey Pang & Samuel Wong Ltd., Thomas St., Haymarket.
Reedy & Lee, City Markets.
Rogers, F. H. G., Fruit Exchange.
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VICTORIA.
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Millis, A., & Sons, Western Markets.
McClure, Valentine & Co. Pty. Ltd., 49 William St.
Mumford, J. G., 449 Flinders Lane.
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Stott & Son, T., Western Markets.
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Wade & Co., H. M., 439 Flinders Lane.
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Brisbane.
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Jones & Co. Ltd., H., Fruit Exporters.
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Ridley, Houlding & Co., Covent Garden.
Swann & Co., 3 Salter's Hall Court.

Hull.
White & Son Ltd.

COMPARATIVE WEIGHTS AND MEASURES.

English Fruit Weights.

Apples, sieve is equal to 1 bushel, generally 38 lbs.
Cherries and Currants, ½ sieve equal to 24 lbs.
Gooseberries, Plums, ½ sieve, equal to 28 lbs.
Pears, sieve, equal to 50 to 56 lbs.

Foreign Weights.

Apples, Canadian, barrel, equal to 140 lbs.
Apples, American and Nova Scotian, barrel, equal to 120 to 130 lbs.
Pears, Californian case, equal to 40 lbs.

British, Foreign and Australasian Market Reports.

Holland.

Rotterdam (1/5/24).

Messrs. Algemeene, Vruchten Import Maatschappij report having received 350 cases of Australian Apples ex the s.s. "Ormuz," transhipped from London:—

Cleopatras—100 cases, quality good and sound, colour fair. Prices, 2½, 2¾. 17/6; 2¼, 17/6, 18/-.

Jonathans—250 cases, fair quality; some mellow and bruised; good colour. Sizes received—2¼, 2½, 2¾, all of which realised 13/-, 13/6. The sizes preferred in Holland are 2½, 2¾, and 3 inch.

Great Britain.

London (14/6/24).

The following are the prices realised at Covent Garden, as published in the "Fruit, Flower and Vegetable Trades' Journal":—

Apples.—West Aust., 16/- to 17/-; Vic., 12/6 to 16/-; Tasmania, 13/- to 16/6; New Zealand, Cleos., 16/- to 18/-; others, 13/- to 17/-; Apricots, 8/- to 12/-; ½-sieve, Bananas, 13/- to 25/-; Cherries, 8/- to 12/ ½ sieve; Figs, 4/- to 18/- per doz.; Grapes, Australian, 27/6 to 35/-; English, 2/- to 10/- per lb.; Lemons, 20/- to 22/6; Oranges, 22/6 to 30/-; Peaches, English, 8/- to 24/- per doz.; Pears, Australian, Winter Cole, 6/- to 8/- per tray; New Zealand, 3/6 to 11/-; Pines, 2/6 to 5/- each

Liverpool (11/6/24).

Messrs. J. C. Houghton and Co. report as follows:—Tasmanian Apples, Cleos., 13/- to 18/6; N.Y.P., 10/- to 17/3; other varieties, 9/6 to 17/-; Lemons, Messina and Palermo, 6/- to 12/-; Oranges, Valencias, 300's, 13/6 to 21/- half case.

New South Wales.

Sydney (24/7/24).
Mr. F. Chilton reports under date 24/7/24), prices as follows:—

Queensland Fruits.—Bananas, 20/- to 34/- per case; Pines, smooth, 8/- to 12/-; Ripley, 6/- to 9/-. New South Wales Fruits. — Bananas, Tweed River, 20/- to 34/- per case; Lemons, 4/- to 7/- per bushel case; Oranges, Common, 4/- to 8/-; Navels, 9/- to 13/-; Mandarins, Emperor, 5/- to 12/-; Thorny, 3/- to 6/- per half case; Sevilles, 3/- to 5/- per bushel case; Grapefruit and Shaddocks, 4/- to 8/-; Apples, Granny Smith, 14/- to 18/-; Passions, 4/- to 7/- per half case; Loquats, 3/- to 7/-. Victorian Fruits.—Apples, Jon., 8/- to 13/- per bushel case; Five Crown, 8/- to 12/-; Granny Smith, 12/- to 15/-; Pears, Howell, 6/- to 8/-; Keiffer's, 5/- to 7/-; B. Bosc, 7/- to 9/-; Jos., 9/- to 14/-. Tasmanian Fruits.—Apples, Jon., 9/- to 13/-; S.T.P., 9/- to 13/-; Dem., 11/- to 13/-; French Crabs, 10/- to 14/-; Crofton, 10/- to 14/-; S.P.M., 8/- to 14/-; Pears, W.C., 4/6 to 7/- per half case; W.N., 4/- to 7/; Jos., 4/6 to 7/-. South Australian Fruits.—Apples.—Cleos., 11/- to 13/- per bushel case; Jos., 11/- to 13/-; R.B., 9/- to 13/6; S.P., 9/- to 13/-.

Victoria.

Melbourne (26/7/24).

The V.C.C.A. Market Representative reports under date, 26/7/24:—

The supplies of Navel Oranges to hand during the week were normal. Prices were slightly in advance of last week's rates for choice fruits. Mandarins are plentiful, and are having a bearing on the price of Navel Oranges. Sufficient Lemons are coming to hand to supply needs. Navels realised—Special, 14/-; Choice, 11/- to 13/-; Standard, 9/- to 11/-; Common, 8/- to 10/-. Mandarins, Special, 14/-; Choice, 12/- to 13/-; small, slow of sale, 7/- to 9/-; Lemons, 6/- to 9/-.

Melbourne (26/7/24).

The following are the prices ruling at Western Market:—Apples, dessert Jon., 7/- to 12/- per bushel case; Delicious, 11/- to 12/-; Five Crown, 8/- to 12/-; Pineapples, 9/- to 11/-; Bananas, choice, 27/- to 30/-; seconds, 15/- to 21/-; Navel Oranges, choice, 10/- to 14/-; others, 8/- to 11/- common Oranges, 8/- to 10/-; Mandarins, 10/- to 13/-; Lemons, 8/- to 10/-; Custard Apples, 6/- to 7/-; Passionfruit, 10/- to 12/-.

Western Australia.

Perth (19/7/24).

Apples, Yates, prime, 14/- to 18/6; small, to 8/-; Doherty, prime, 13/- to 16/9; others, to 8/6; Granny Smiths, prime, 14/- to 17/-; others, to 11/-; Cleos., to 14/-; Dunn's, best, 11/- to 14/-; small, to 8/-; Rome's, best, 13/- to 15/-; small, to 9/-; Baldwin, 11/- to 13/3; Hoover, 10/6 to 12/3; Rymer, 10/-, 12/6; Navel Oranges, bushels, 8/- to 10/6; ¾ bushels, best, 7/6 to 9/6; others to 6/-; ordinary Oranges, to 6/6; small, to 4/-; Mandarins, best, 12/- to 16/9; others, to 8/-; Lemons, 2/3 to 5/-; Passion-fruit, ¼ cases, to 16/9.

South Australia.

Adelaide (24/7/24).

Apples, Cleos., 7/- per bushel case; eating, 6/-; cooking, 5/-; Lemons, 6/-; Oranges, common, 6/-; Mandarins, 14/- to 18/-; Navels, 10/-; Poorman, 8/-; Passion-fruit, 16/- to 18/-; Pears, eating, 6/- to 8/-; cooking, 5/-; Pines, 14/- to 16/-; Bananas, 28/- to 32/-.

Queensland.

Brisbane (21/7/24).

Oranges, 5/- to 9/- per bushel case; Navels, prime, 7/- to 10/-; others, 3/- to 6/-; Emperors, prime, 7/- to 10/-; others, 3/- to 6/-; Glen Retreats, prime, 7/- to 10/6; others, 3/- to 6/-; Custard Apples, 3/- to 5/- half bushel case; Passion-fruit, prime, 7/- to 9/-; others, 4/- to 6/-; Papaws, 1/6 to 4/- tray, 1/6 half-bushel; Lemons, 2/- to 3/6 ½ case; Limes, 2/- to 4/-; Pines, 4/- to 6/- rough leaf; smooth leaf, 4/6 to 6/-.

New Zealand.

Reilly's Central Produce Mart report under date 11/7/24:—Apples: Choice Jons., 10/- to 12/6; Delicious, 12/6 to 17/6; Scarlets, 8/6 to 11/6; Cleos., 9/- to 10/6; Sturmers, 10/- to 12/-; other desserts, 7/- to 9/-; choice cookers, 7/6 to 8/-. Pears: Winter Nelis, 4d. to 4½d.; Coles' 3½d. to 4d.; Twyford Monarch, 3d. to 4d.; small, 2d.! cooking, 2¾d. to 3d. Californian Oranges, 36/-; Rarotonga repacks, 18/6; Australian Navels, 21/- to 24/-; American Lemons, 37/-; Melbourne, 17/6; Passion-fruit, 20/-; Pines, 18/- to 22/-; Bananas, ripe, 32/-; Fiji, 18/- to 21/-.

SUBSCRIBERS' PAYMENTS RECEIVED.

The following are the subscriptions received from June 20th to July 20th, 1924. The month quoted in parenthesis indicates to what date the subscription is paid. These are exclusive of the subscribers who have paid to local agents or to our offices in the various States:—

F. J. Akers (Aug., '24), J. Alexander (June, '25), Mrs. S. Arnold (Jan., '25), W. S. Arnold (Feb., '25), Wm. Anker (May, '25), Fred Artlett (Dec., '24), S. B. Backhouse (May, '25), T. P. Bawden (June, '24), Bender & Co. (June, '25), E. B. Beruldsen (June, '25), H. Birmingham (Mar., '25), A. W. Brain (June, '25), H. G. Brickhill (Mar., '25), W. H. Browne (June, '24), Burnside & Co. (June, '25), C. Buchele (Mar., '25), J. A. Cameron (May, '25), D. Cameron (June, '24), Geo. H. Carlson (July, '24), W. H. Carne (June, '25), N. H. Case (Mar., '25), J. G. Charlton (Jan., '24), Clarence Pt. Co-op. Orchards Pty. Ltd. (June, '25), Geo. Clift (Mar., '25), Miss M. Colquhoun (Mar., '25), Chris. Connor (Aug., '25), Cook Islands Admin. (Mar., '25), W. Collyer & Son (June, '25), G. H. Cunningham (Apr., '28), H. P. Davenport (May, '25), Dennys, Lascelles Ltd. (Dec., '24), Harry Denham (June, '25), B. Dowden (Mar., '25), Geo. J. Eipper (May, '25), A. C. Evans (Mar., '25), M. Ferguson (Mar., '26), A. S. Foster (Jan., '25), R. Fowler (June, '25), T. A. Frankcombe (Mar., '25), E. J. Francis (Apr., '25), M. B. Geneste (May, '27), Gerrard Wire Tying Machines Co. Pty. Ltd., Syd. (Apr., '25), S. P. Gollings (Sep., '24), J. Green (June, '27), P. Hansen (June, '25), C. W. Hammerling (Nov., '24), W. R. Hamilton (Aug., '24), W. H. Harvey (Dec., '24), Harrison and Stuchbery (Aug., '24), J. R. Henderson (June, '25), C. V. Henry (Apr., '25), H. Hetherington (Apr., '25), Hewitt & Browne (June, '25), Hill Bros. (June, '25), F. W. Hibbert (Mar., '25), H.M. Stationery Office, Lond. (Dec., '24), Thos. Horton Ltd. (Dec., '24), Irymple Packing Pty. Ltd. (Aug., '24), F. E. James (June, '24), M. M. Jenkins (July, '25), E. Jeanes (June, '25), Johnson & Harfield (Nov., '24), Johnstone & Bennett (June, '25), A. N. Jones (May, '25), D. Johnston (May, '25), Thos. Kelly, Sen. (June, '25), Ad. Kieselbach (June, '25), A. R. Knight (Dec., '24), E. Kolling (June, '25), Thos. Lawford (May, '25), E. Leishman (June, '25), M. Leonard (Aug., '24), P. V. Lockey (June, '25), Lourensford Estate (Dec., '24), A. E. Lloyd (June, '25), D. Martin (Sep., '24), E. Mann & Son (June, '25), A. Mannis (Sep., '24), C. H. Martin (June, '25), May Bros. (June, '25), Mildura Co-op. Fruit Co. Ltd. (June, '25), H. Oates (Feb., '25), Oppenheimer Bros. Ltd. (Dec., '24), Overseas & Inter-State Trading Co. (June, '25), W. G. Parker (Aug., '24), G. A. Peart (June, '25), P. Penn (June, '25), C. Piesse & Co. (Oct., '24), H. Porter (May, '25), W. R. Prosser (Dec., '24), Jas. L. Provan (June, '25), W. H. Press (Feb., '25), A. E. Ratcliffe (Mar., '25), A. F. Ray (Nov., '23), L. B. Reid (May, 23), J. H. M. Reynolds (Dec., '24), C. B. Rees (Apr., '25), Roberts & Co. Ltd. (June, '25), W. J. Robertson (Mar., '25), T. W. Robson (Feb., '25), R. M. Rudder (Jan., '25), W. A. Rolfe (June, '25), S. Sandow (June, '25), J. P. Sandy (Apr., '25), G. F. Scarlett (June, '25), C. F. Scheuffele (Mar., '25), Shepparton Irrig. Assoc. (July, '25), A. Snelling (June, '25), P. Sorensen (Mar., '26), G. H. Sprague (Feb., '25), Southernden Bros. (Dec., '24), C. H. Sorensen (Sep., '25), A. V. Strong (July, '25), A. H. Taylor (Apr., '25), P. Thomas (Mar., '25), Thompson Bros. Ltd. (May, '25), A. U. Tonkin (May, '25), E. B. Treatt (June, '24), J. Twyford (Aug., '24), H. W. Von Bertouch (Jan., '25), Geo. Vincent (Feb., '25), E. E. Wagstaff (Mar., '25), C. Wallace (Apr., '25), M. T. Watson (Jan., '25), W. Wilson (June, '25), T. D. Williams' Exors. (Sep., '24), F. Witherby (Jan., '25), F. C. Wood (Mar., '25), A. Woolley (May, '25), W. D. Wrench (Sep., '25), C. D. Yeoland (Feb., '24).

Open Letter to Australian Fruit Growers and Shippers.

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